LIGHTING EQUIPMENT
with Engineered Illumination
for COMMERCIAL APPLICATIONS

OCT 25 1941

THE ART METAL COMPANY
CLEVELAND, OHIO

CATALOG C143
WITH ILLUMINATION DESIGN DATA
A. I. A. FILE 31F2

SYNOPSIS

● Fundamentals of illumination have advanced through the intensive research of the Science of Seeing. At no time has engineered illumination encompassed so broad a field.

The first and foremost question in the selection of an engineered lighting system becomes the objective to be accomplished. The second question concerns the engineering method and technique to be employed to fulfill the basic purpose.

A critical evaluation of any lighting system should give consideration to the following essentials: quality (kind and type of illumination), quantity (amount of illumination), and esthetic appeal.

Lighting design and specification deals not only with new construction projects, but even to a greater extent, is concerned with improvement of existing systems to make them more effective.

This catalog illustrates types of lighting equipment for all commercial interiors. These types are Direct, Indirect, Semi-Indirect, Direct-Indirect, Controlled Down Lighting and Fluorescent Lighting. The technical information, such as candlepower distribution curves and the coefficients of utilization for certain equipment, is given, for the scientific approach to lighting design problems. The Illumination Design Data embraces the Lumen Method and the Point-by-Point Method of calculation. Supplementing the latter is a table for footcandle values on a horizontal plane.

The salient features of Art Metal products are engineered illumination design, refined styling and sturdy construction.

THE ART METAL COMPANY, CLEVELAND, OHIO
MANUFACTURERS OF LIGHTING EQUIPMENT SINCE 1914

Printed in U. S. A.

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ALL EQUIPMENT LISTED IN THIS CATALOG IS APPROVED BY THE UNDERWRITERS' LABORATORIES, INC., AND IS LABELED AS EVIDENCE THEREOF.

A Partial List of Companies* that have installed Art Metal Lighting Equipment

Adolphus Hotel, Dallas, Texas
Albany Hospital, Albany, New York
Albiani's, Boston, Mass.
Archer Daniels Midland Company, St. Paul, Minn.
Archer Daniels Midland Company, Minneapolis, Minn.
Aulsbrook Company, Detroit, Mich.
Walter Baker Chocolate Mills, Milton, Mass.
Baldwin Piano Company, Pittsburgh, Pa.
Belmont Hospital, Worcester, Mass.
Bendix Corporation, South Bend, Ind.
Biggs Memorial Hospital, Ithaca, N. Y.
Boston College High School, Boston, Mass.
Capitol Theatre Building, Worcester, Mass.
Church of Christ, Fort Wayne, Ind.
Chrysler Motors (Air Temp. Division), Des Moines, Ia.
Chrysler Corporation (De Soto Division), Detroit, Mich.
Children's State Home, Casper, Wyoming
C. I. A. College, Denton, Texas
City Hall, Peoria, Illinois
Clinton Town Hall, Clinton, Mass.
Colt's Patent Fire Arms Company, Hartford, Conn.
Colonnade Company, New York and others
Columbia National Life Insurance Co., Boston, Mass.
Columbia School, Hammond, Ind.
Commodore Perry Hotel (Private Suites), Toledo, Ohio
Consolidated Laundries, Brooklyn, N. Y.
Detroit City Schools, Detroit, Mich.
Dewey-Almy Chemical Company, Cambridge, Mass.
Durango Junior High, Durango, Wyoming
Andrew Dutton Company, Boston, Mass.
Eastman Kodak Company, Rochester, N. Y.
E. W. Edwards & Sons, Syracuse, N. Y.
Elks Club, Tonawanda, N. Y.
Engineers Club, Boston, Mass.
Fairfax Hotel, Buffalo, N. Y.
Farmers & Mechanics Savings Bank, Minneapolis, Minn.
First National Stores, Boston, Mass.
F. W. Fitch Company, Des Moines, Ia.
Fleming Building, Des Moines, Ia.
Flynn Building, Des Moines, Ia.
Franklin-Baker Company, Hoboken, N. J.
General Foods Building, New York City, N. Y.
General Sea Foods Company, Boston, Mass.
Genesee Building, Buffalo, N. Y.
Gilman Fanfold Company, Niagara Falls, N. Y.
Glenville Hospital, Cleveland, Ohio
Golden Eagle Dry Goods Co., Denver, Colorado
Governor Clinton Hotel, Kingston, New York
Great Lakes Naval Training Station, Great Lakes, Ill.
Julian Goldman's Stores, Syracuse, N. Y.
Government Printing Office (Cafeteria), Washington, D. C.
Hammond Civic Auditorium, Hammond, Indiana
Harvard College (School of Biology), Cambridge, Mass.
Hercules Powder Co., Wilmington, Del.
Holy Cross Hospital, Salt Lake City, Utah
Hospital Building, New Mexico Asylum for Deaf & Dumb, Santa Fe, New Mexico
Hotel Darling, Wilmington, Del.
Hurley Machine Company, Cicero, Ill.
Insurance Building, Omaha, Nebr.
Intermountain Clinic, Salt Lake City, Utah
Investors Syndicate, Minneapolis, Minn.
Iowa-Des Moines National Bank Building, Des Moines, Ia.
James Andrew Jackson Junior High School, Pasadena, Tex.
The Johnson Store, Bradford, Pa.
Joyce Hotel (Lobby), Colorado Springs, Colorado
Kapps Hotel, Rensselaer, New York
Kerwin's Department Store, Framingham Center, Mass.
K. L. Z. Broadcasting Studios, Denver, Colorado
K. L. Z. Transmitter Station, Englewood, Colorado
Laner Furniture Company, Rochester, N. Y.
Leeman Auto Company, Denver Col.
Libby-Owens-Ford Glass Company, Toledo, Ohio
Lifkin Stores, Easton, Pa.
Liquid Carbonic Company, Minneapolis, Minnesota
Lykes Brothers Insurance Co., Tampa, Fla.
Mansion House, N. Adams, Mass.
Marquette Hotel, Peoria, Ill.
Melrose Hotel, Dallas, Texas
Midland Steel Company, Detroit, Mich.
Ministers Life & Casualty Company, Minneapolis, Minn.
Minnesota National Bank, Duluth, Minn.
Monterey Hotel, Asbury Park, N. J.
Municipal Tuberculosis Sanitarium, Chicago, Illinois
National Automotive Fibres, Inc., Detroit, Michigan
National Grinding Wheel Co., North Tonawanda, N. Y.
National Twist Drill & Tool Company, Detroit, Michigan
Natural History Museum, University of Colorado, Boulder, Colo.
Newport Naval Hospital, New Wing, Newport, R. I.
National Tea Company, Chicago, Ill.
New England Furniture Company, Minneapolis, Minn.
New Public Works Building, Peabody, Mass.
News Building, Grand Rapids, Mich.
News Building, Saginaw, Mich.
New York State Hospitals (10), State of New York
New York State Teachers Building, Albany, N. Y.
Niagara Permanent Savings & Loan, Niagara Falls, N. Y.
Oldsmobile Company, Lansing, Mich.
Park Central Hotel, New York City, N. Y.
Park Lane Hotel, Denver, Colorado
Paxton Hotel Coffee Shop, Omaha, Nebr.
People's Store, Troy, New York
Pierre Marcel Co., Boston, Mass.
Pioneer Hotel, Amarillo, Texas
Progressive Aid Insurance Co., Philadelphia, Pa.
Public Library, St. Joseph, Mo.
Purdue University, Lafayette, Ind.
Pure Oil Company, Minneapolis, Minn.
Purity Bakeries, New York City, N. Y.
Quincy Electric Light Company, Quincy, Mass.
Remington-Rand, Inc., Various Cities
Riviera Restaurant, Buffalo, N. Y.
Rundel Memorial Library, Rochester, N. Y.
Russell Miller Company, Portland, Ore.
Sage-Allen Company, Hartford, Conn.
Salem Electric Light Company, Salem, Mass.
San Jose Armory, San Jose, Cal.
Schiff Shoe Company, Columbus, Ohio
Shadbolt & Boyd Company, Milwaukee, Wisc.
Shepard Stores, Boston, Mass.
Shepard Stores, Providence, R. I.
Silver Creek Hotel, Silver Creek, N. Y.
Silverkane Restaurant, Binghamton, N. Y.
Socony Vacuum Oil Company, New York City
Standard Oil Company of New York, Albany, New York
Franklin Simon Company, New York City, N. Y.
Smith Winchester Company, Jackson, Mich.
South Shore Towers, Chicago, Ill.
Southern Casket Company, San Antonio, Texas
Southern Pacific Railroad Company, San Francisco, Cal.
Sparks Theatres (8), Florida
St. Jerome Hospital, Batavia, N. Y.
Steiger's Store, Springfield, Mass.
Steuben Building, Chicago, Ill.
Swift Printing Company, St. Louis, Mo.
Tacoma Hospital & Sanitarium, Greenville, Tenn.
Union Pacific Offices, Denver, Colorado
University of Minnesota, Minneapolis, Minn.
University Club, Pittsburgh, Pa.
University of Illinois, Urbana, Ill.
U. S. Army Post, Fort Niagara, N. Y.
U. S. National Bank, Vancouver, Wash.
Walper's Department Store, Chelsea, Mass.
Warren Apartments, Cheyenne, Wyoming
Wayne County Building, Detroit, Michigan
Washburn-Crosby Company, Buffalo, N. Y.
Warren Allen Carpet Company, Boston, Mass.
Western Tablet & Stationery Company, St. Joseph, Mo.
Western United Gas & Electric Co., Aurora and Murphysboro, Ill.
Worcester Electric Light Company, Worcester, Mass.
Yale University (Graduate College and Payne Whitney Gym), New Haven, Conn.
Yawman & Erbe Desk Company, Boston, Mass.
Y. M. C. A., Various Cities
N. Texas State Teachers College, Denton, Texas
Southwestern State Teachers College, San Marcus, Texas
Texas Technological School, Lubbock, Texas
Public Library, San Angelo, Texas
Arcadia Theatre, Dallas, Texas
Oklahoma A. & M College, Stillwater, Oklahoma
Anglo-California National Bank, San Francisco, California
Kohler & Chase, San Francisco, California
Talon Fastener, Inc., San Francisco, California
City Hall, Boston, Mass.
Boston Edison Company, Woburn Store, Woburn, Mass.
Kidder-Peabody Company, Boston, Mass.
Hale Rubber Company, Quincy, Mass.
New England T. & T. Company, Providence, R. I.
Waverly Coop. Bank, Waverly, Mass.
Masonic Hall, Arlington, Mass.
Reading Municipal Light Company, Reading, Mass.
Public Library, Framingham, Mass.
Town Hall, Framingham, Mass.
Gold Seal Shoe Company, Boston, Mass.
Prudential Insurance Company, Boston, Mass.
Metropolitan Life Insurance Company, Torrington, Conn.
Clearweave Hosiery Stores (20) Stores
Russia Cement Company, Gloucester, Mass.
Standard Oil Company, New York City
N. J. Zinc Company, New York City
Abraham & Straus, Brooklyn, New York
American Business Credit Corporation, New York City
Towers Hotel, Brooklyn, N. Y.
New York State Hospital of Mental Diseases, Central Islip, N. Y.
Bloomfield High School, Bloomfield, New Jersey
Paterson High School, Paterson, New Jersey
Public Library, Locust Valley, New York
Cathedral College, New York City
Hotel Tudor, New York City
General Foods, Brooklyn, New York
Shell Union Oil Corporation, Jackson Heights, New York
Hotel Gotham, New York City
Loft, Inc. (5 stores in New York City)
Personal Finance Company, Various Branches
New York World's Fair, Draftsmen's Headquarters
Hotel Fairmount, Jersey City, N. J.

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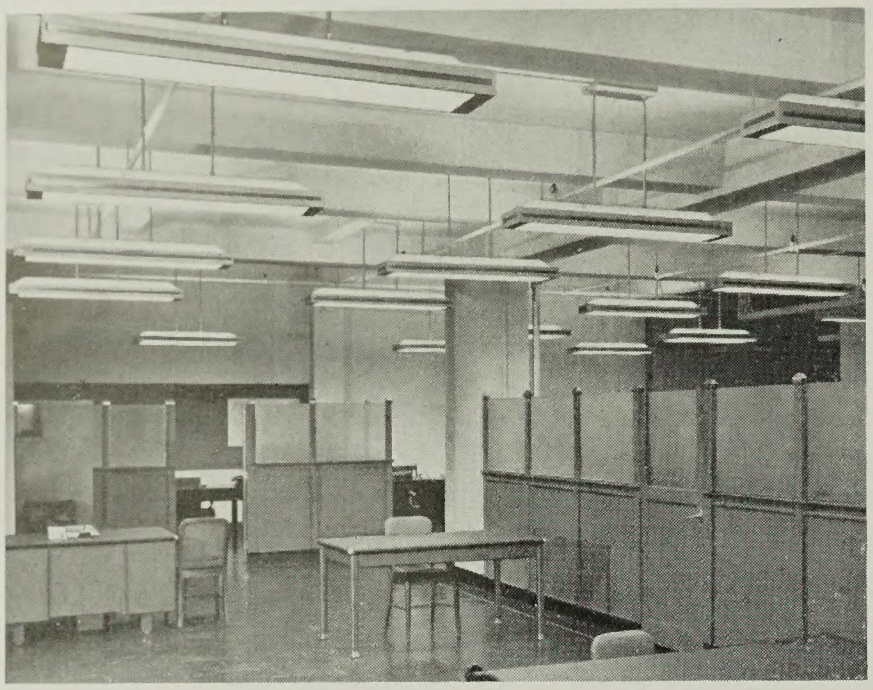
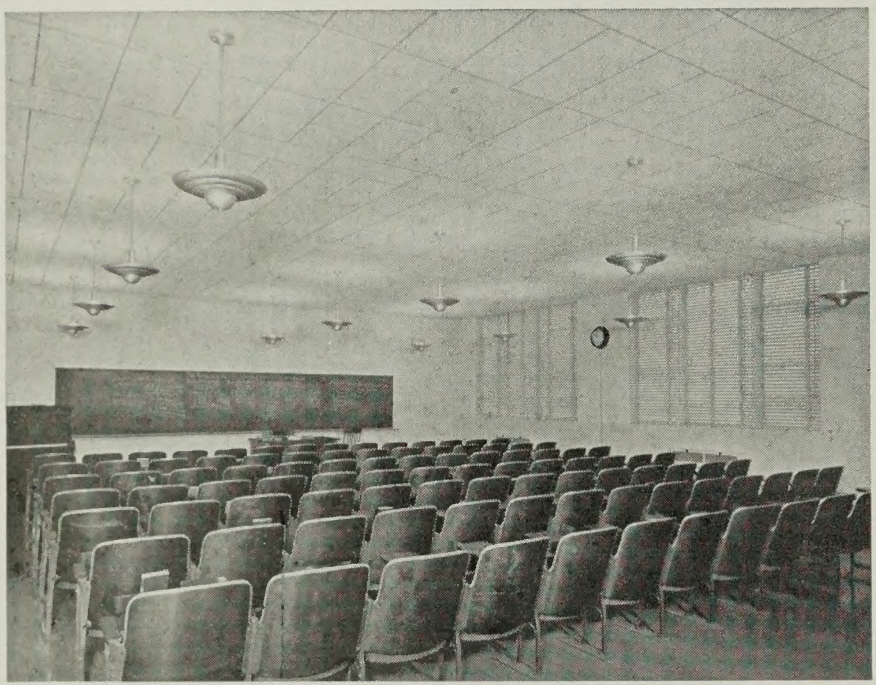
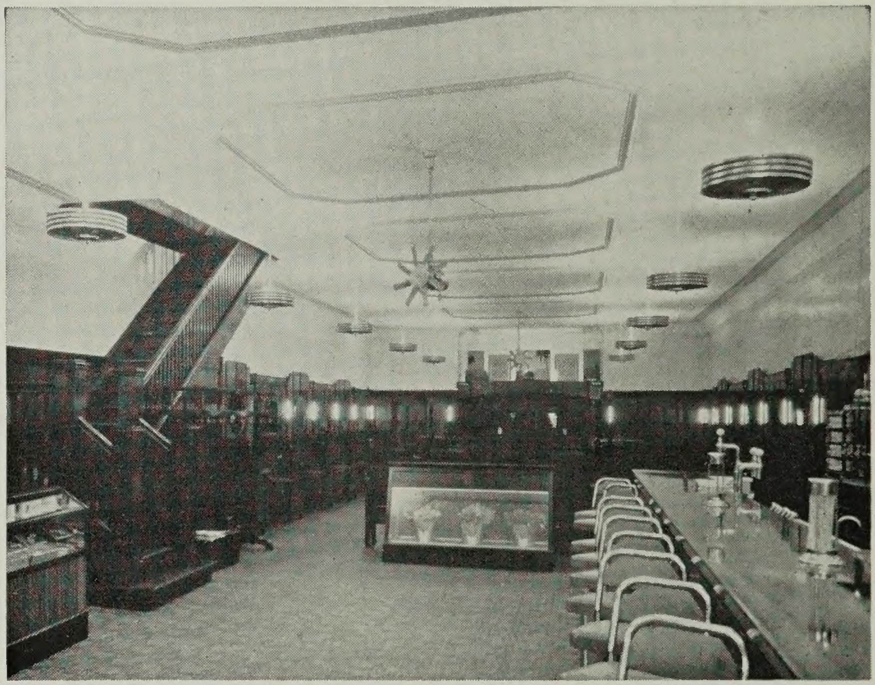
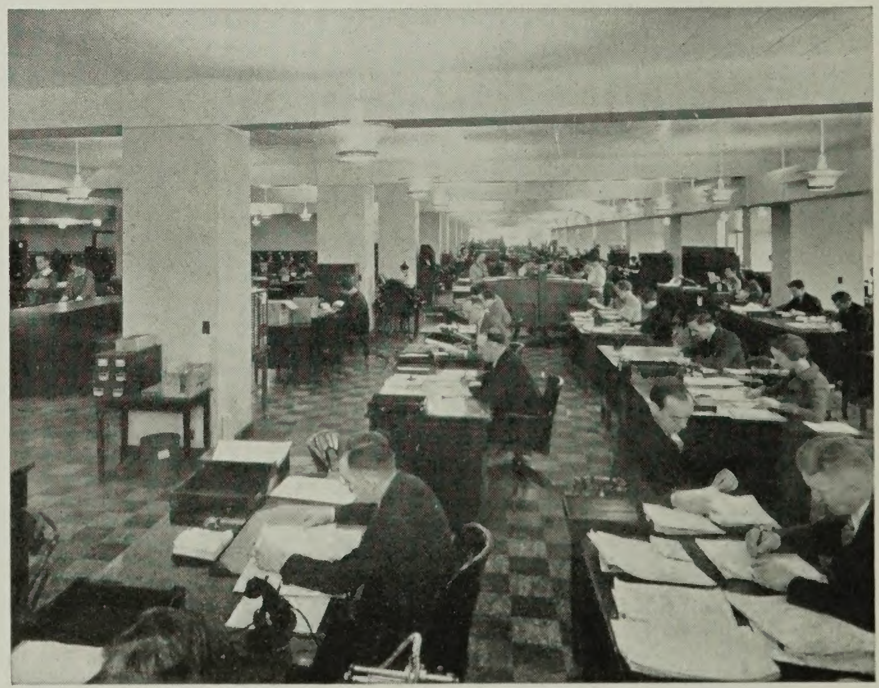
*Complete or partial installations.

ILLUSTRATING THE VERSATILITY OF ART METAL ENGINEERED LIGHTING EQUIPMENT



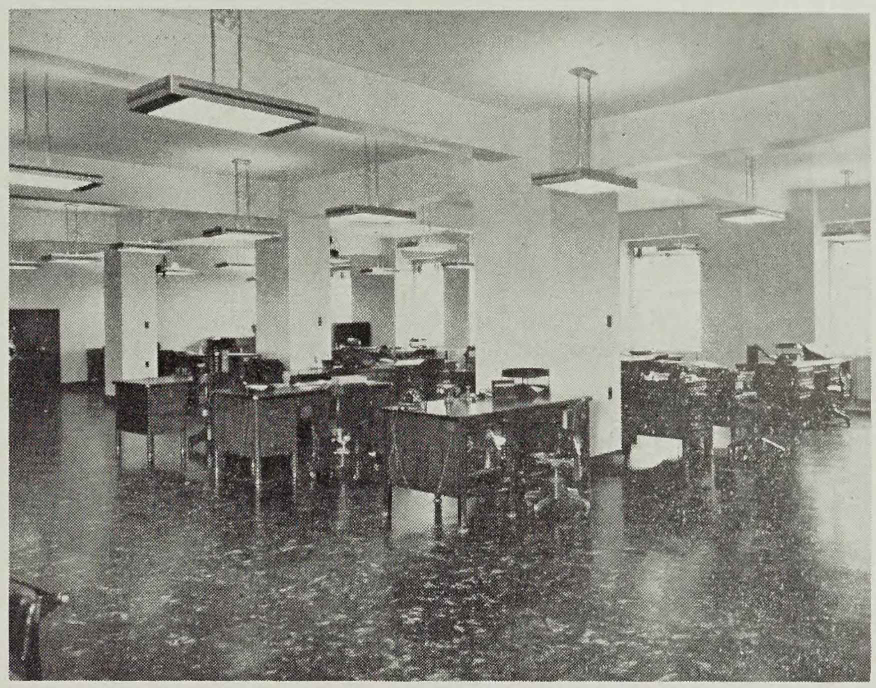


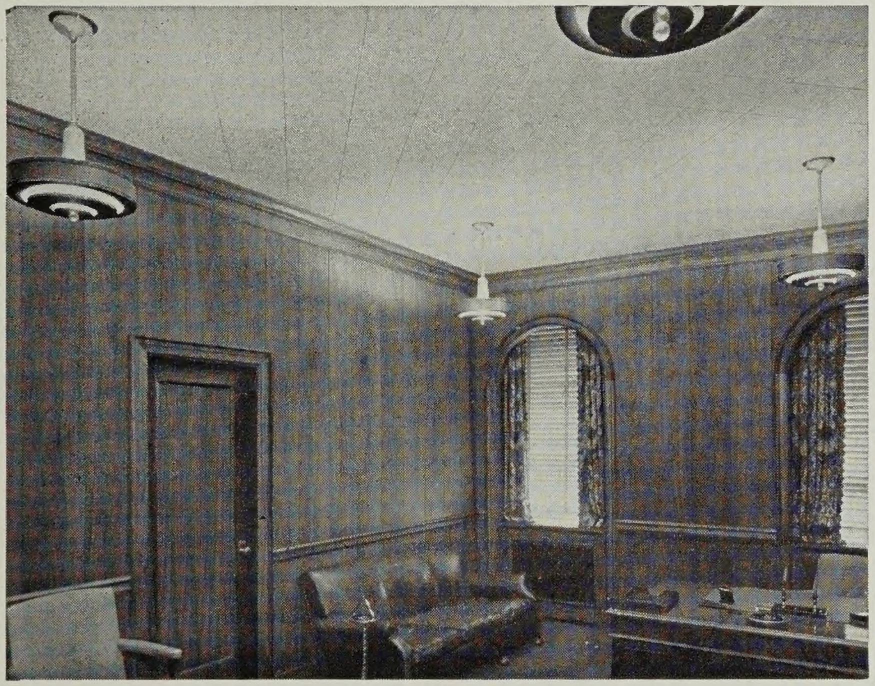


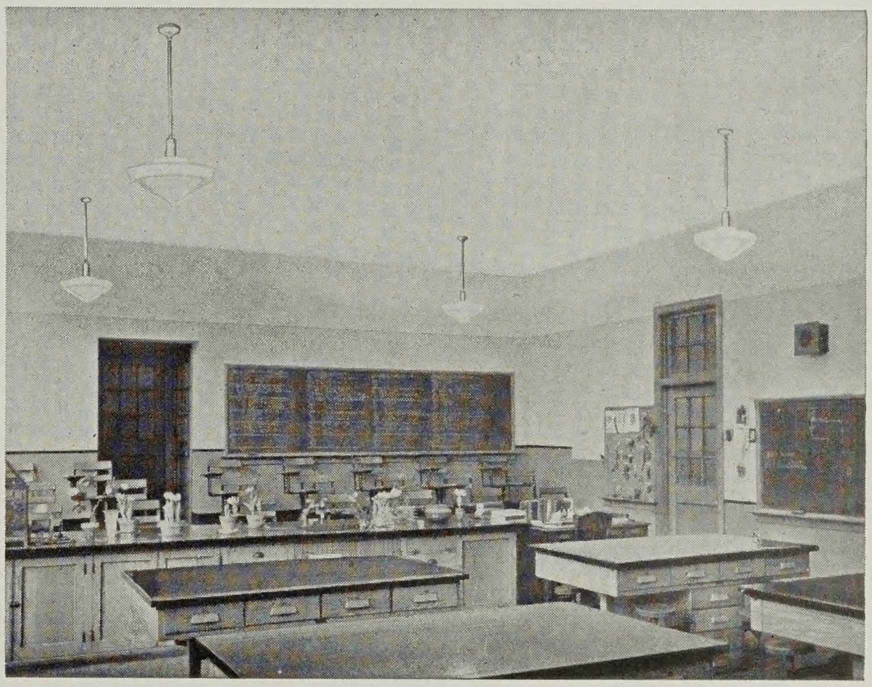


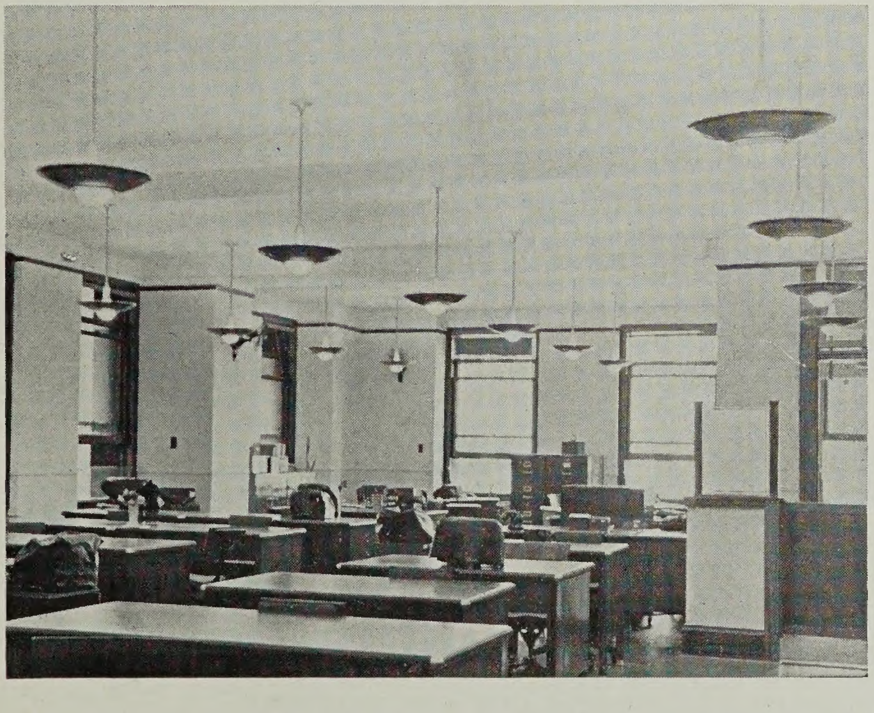
A Partial List of Companies that have installed Art Metal Lighting Equipment is given on page 3.

ART METAL PROVIDES FOR THE SELECTION OF THE CORRECT TYPE OF ILLUMINATION









A Partial List of Companies that have installed Art Metal Lighting Equipment is given on page 3.

FLUORESCENT LIGHTING DATA

ENGINEERING SERVICE

● FLUORESCENT lighting installations can be planned on the same basic concepts as INCANDESCENT lighting, however, FLUORESCENT Lighting is a highly specialized form of illumination and requires competent engineered planning to insure a lighting installation of the utmost efficiency.

We suggest problems on special applications or major general lighting installations be submitted our Illuminating Engineering Department for layout.

RATED LUMEN TABLES

FLUORESCENT LAMPS

Lamp	Watts	Daylight	3500° White
18″ T8	15	495	615
24″ T12	20	730	900
36″ T8	30	1200	1450
48″ T12	40	1700	2100
36″ T17	65	1800	2100
60″ T17	100	3350	4200

In any computation involving wattage or over-all efficiency of Fluorescent Lighting the ballast wattage must not be neglected. This is a variable ranging from 15%-30% of the wattage of the lamps themselves.

INCANDESCENT (FILAMENT) I.F. LAMPS

Wattage	Lumens
40	465
60	835
100	1650
150	2600
200	3700
300	5700
500	10,000
1000	21,500

OPERATING EQUIPMENT

All Fluorescent units shown in this catalog are complete with latest type starters and lamp ballasts for operation on 110-125V—60 cycle A.C.

Fluorescent fixtures of 2-4 or 8 lamps are equipped with High Power Factor Tu-Lamp ballasts which make use of the split phase principle—one lamp being ballasted by inductance and the other lamp by inductance and capacitance in series, minimizing cyclic flicker or stroboscopic effect.

Single Lamp Fluorescent fixtures are listed with high power factor ballasts and also with uncorrected ballasts. Equipment originally installed with low power factor ballasts can always have corrective capacitors added later if required.

POWER-FACTOR

The importance of power factor arises from the fact that uncorrected Fluorescent ballast equipment commonly called low power factor (55%-60% power factor) places a handicap on the wiring and control devices on the customer's premises. The Utility Companies are, in many instances, requiring high power factor (90%-100%) because low power factor devices require generating and power distribution equipment capacity out of all proportion to the energy registered.

All Art Metal high power-factor Fluorescent fixtures conform to the requirements of all Utility regulations having to do with this subject.

WARRANTY

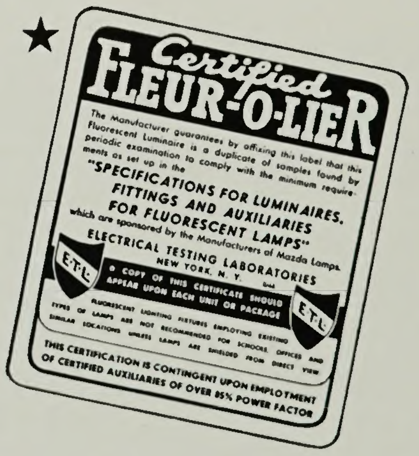
All units are tested before leaving factory—The Art Metal Company assumes no responsibility for the performance or life of any component equipment not of our manufacture.

The manufacturers of starter switches and ballasts will replace defective equipment but will accept no labor or transportation charges.

ORDERS

ALL ORDERS MUST SPECIFY voltage and cycles, A.C. (standard). Equipment for D.C. or 50 Cycle A.C. is special—prices on application.

★


Certified FLEUR-O-LIER

The Manufacturer guarantees by affixing this label that this Fluorescent Luminaire is a duplicate of samples found by periodic examination to comply with the minimum requirements as set up in the

"SPECIFICATIONS FOR LUMINAIRES, FITTINGS AND AUXILIARIES FOR FLUORESCENT LAMPS"

which are sponsored by the Manufacturers of Mazda Lamps.

ELECTRICAL TESTING LABORATORIES
NEW YORK, N. Y.

A COPY OF THIS CERTIFICATE SHOULD APPEAR UPON EACH UNIT OR PACKAGE

FLUORESCENT LIGHTING FIXTURES EMPLOYING EXISTING TYPES OF LAMPS ARE NOT RECOMMENDED FOR SCHOOLS, OFFICES AND SIMILAR LOCATIONS UNLESS LAMPS ARE SHIELDED FROM DIRECT VIEW

THIS CERTIFICATION IS CONTINGENT UPON EMPLOYMENT OF CERTIFIED AUXILIARIES OF OVER 85% POWER FACTOR

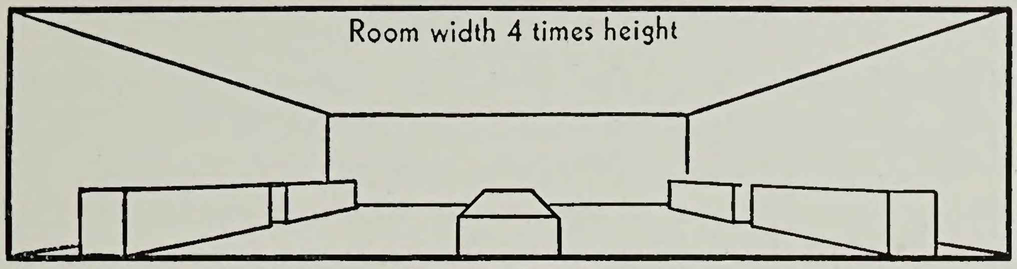
FLEUR·O·LIER *Manufacturers*

★ALL FLEUR-O-LIER equipment carries this tag.

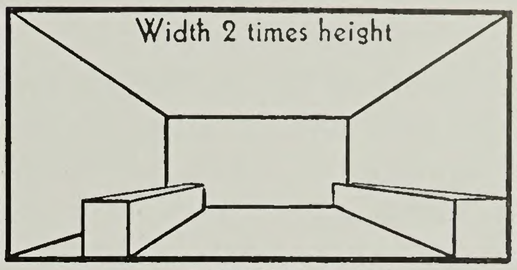
NOTE—SEE PAGE OPPOSITE FOR 50 FOOTCANDLE TABLE, SPACING GUIDE FOR CONTINUOUS ILLUMINATION SYSTEMS AND PAGE 60 FOR COEFFICIENTS OF UTILIZATION.

GUIDE FOR ESTIMATING SQUARE FEET PER UNIT TO GIVE 50 FOOTCANDLES IN SERVICE ★

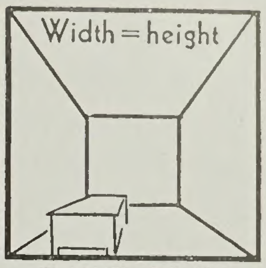
FLUORESCENT LIGHTING EQUIPMENT



LARGE ROOM



MEDIUM ROOM



SMALL ROOM

Art Metal Standard Listed Lighting Equipment Catalog Number	LARGE ROOM		MEDIUM ROOM		SMALL ROOM	
	Light† Finish	Medium‡ Finish	Light Finish	Medium Finish	Light Finish	Medium Finish
	SQUARE FEET PER UNIT					
Louvrlux						
2410—4 lamp— 40 W	66	55	57	48	45	38
2411—4 lamp—100 W	132	110	114	96	90	76
2413—2 lamp— 40 W	33	28	29	24	23	19
2414—2 lamp—100 W	66	55	57	48	45	38
Equalux						
2415—4 lamp— 40 W	55	44	45	37	35	28
2416—4 lamp—100 W	110	88	90	74	70	56
2418—2 lamp— 40 W	28	22	23	19	18	14
2419—2 lamp—100 W	55	44	45	37	35	28
Panelite						
2512L—2 lamp— 40 W	27	24	23	21	18	16
2512F—2 lamp— 40 W	27	24	23	21	18	16

HOW TO USE THIS TABLE

Having selected the fixture to be used, divide the total square feet of floor space to be lighted by the value from this table corresponding to the size and interior finish of the room. This result will indicate the number of fixtures required. For values other than 50 footcandles multiply result by a factor.

For example: A No. 2410 was selected to light an interior area 30′ x 38′ with a ceiling height of 15 feet. The room conditions are medium with a light finish and each unit would require 57 square feet.

Number of units required for 50 footcandles =

$$\frac{30 \times 38}{57} = 20 \text{ units}$$

If 25 footcandles were required instead of 50 footcandles multiply by ½ as:

$$\frac{30 \times 38}{57} \times \frac{1}{2} = 10 \text{ units to produce 25 footcandles}$$

If 100 footcandles were required instead of 50 footcandles multiply by 2 as:

$$\frac{30 \times 38}{57} \times 2 = 40 \text{ units to produce 100 footcandles.}$$

SPACING GUIDE FOR THE CONTINUOUS ILLUMINATION SYSTEM TO PRODUCE 50 FOOTCANDLES IN SERVICE ★

Art Metal Standard Listed Continuous System of Illumination	LARGE ROOM		MEDIUM ROOM		SMALL ROOM	
	Light† Finish	Medium‡ Finish	Light Finish	Medium Finish	Light Finish	Medium Finish
	SPACING ● BETWEEN CONTINUOUS ROWS OF UNITS					
Louvrlux Continuous System of Illumination						
2525—2 lamps— 40 W	8	6½	7	5	5½	5
2526—4 lamps— 40 W	16	13	13½	10½	11	9½
2527—2 lamps—100 W	12½	10½	11	9	8½	7
2528—4 lamps—100 W	25	21	21½	18	17	14
Equalux Continuous System of Illumination						
2534—2 lamps— 40 W	6½	5½	5½	4½	4	3½
2535—4 lamps— 40 W	13	10½	11	9	8	7
2536—2 lamps—100 W	10½	8½	8½	7	6½	5½
2537—4 lamps—100 W	21	16½	17	14	13	10½
Panelite Continuous System of Illumination						
2512—2 lamps— 40 W	6½	6	5½	5	4	4

● This spacing produces an average illumination of approximately 50 footcandles but does not assure even coverage. Check spacing by this table against distribution curve of the equipment to assure adequate coverage.

★Using 3500° white fluorescent lamps. If daylight lamps are used, about 20% more units are needed. The average illumination in service will be around 50 footcandles. Due to depreciation of lamps and units, the initial footcandle levels will be appreciably higher.

†Light Finish—ceiling 75% and walls 50%. ‡Medium Finish—ceiling 50% and walls 30%.

CONTINUOUS PANELITE FLUORESCENT

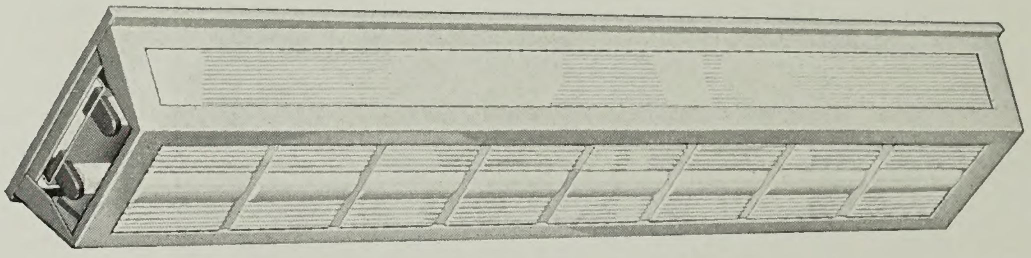
SYSTEM OF DIRECT ILLUMINATION

• The PANELITE System of Illumination is specifically engineered and designed for effective and efficient Fluorescent Lighting in continuous form. The functional design incorporates the use of Fresnel directional control lenses or Lustrex diffusing glass. This continuous method of illumination, mounted directly to the ceiling, provides ample lumens for accepted high levels of illumination by utilizing adequate numbers of lamps to properly and uniformly illuminate interiors. The PANELITE System is a luminous architectural element and becomes an integral part of the interior with esthetic fitness. The PANELITE System of Illumination is composed of three elements: STANDARD SECTION (Illustrated below); BASE UNIT (Illustrated page 9); and INCANDESCENT Lens BOOSTER UNIT (Illustrated page 10).

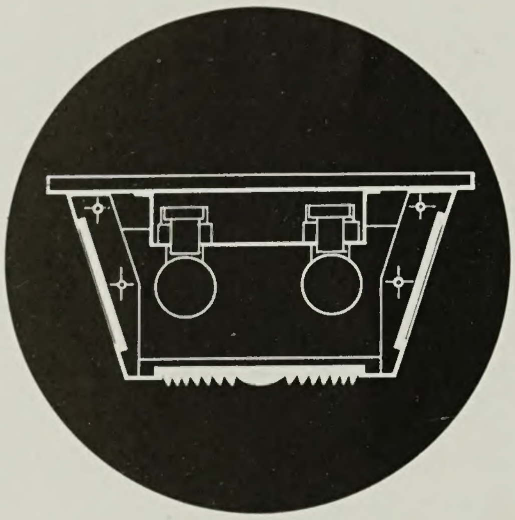
STANDARD PANELITE SECTION

Cat. No.	Lamps	Size	Glass
2512L	2—48"—80W	11¾"x50"x5⅝"	Lustrex
2512F	2—48"—80W	11¾"x50"x5⅝"	Fresnel

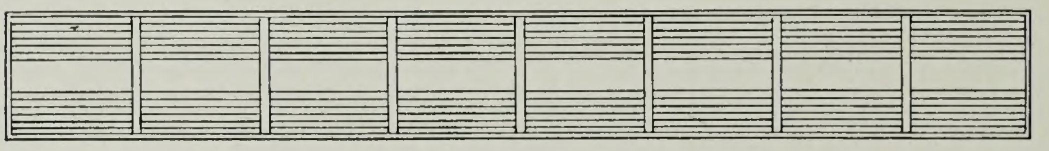
Finish: Satin Aluminum.
Reflecting Surfaces: Glossy White Enamel.
Includes cast junction strap.



STANDARD PANELITE SECTION



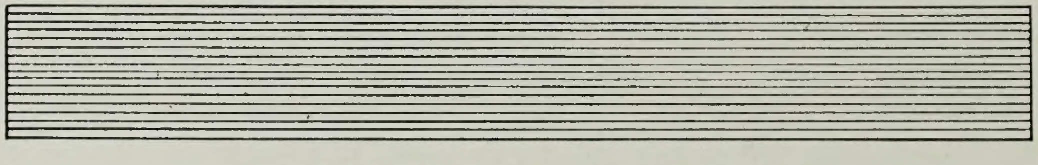
Detail of Standard PANELITE Section—all inner reflecting surfaces are enamelled glossy white — 88% reflection factor.



FRESNEL LENS BOTTOM PANELS

(Designated by letter "F"—following unit number)

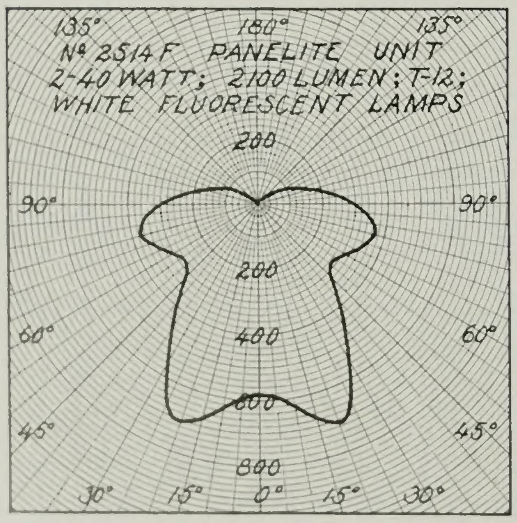
CONTROLS the light flux to produce a maximum spread of illumination with positive control of brightness. These Panels come in 2—24" lengths, butted in the center.



LUSTREX BOTTOM PANELS

(Designated by letter "L" following unit number)

HIGH IN TRANSMISSION AND DIFFUSION QUALITIES. This bottom panel comes in 1—48" length.

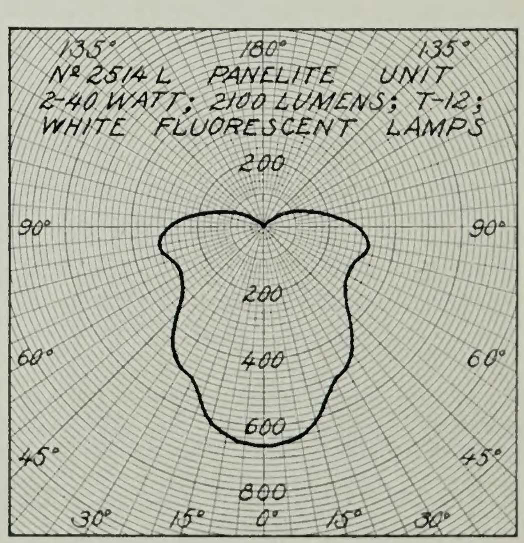


Photometric Candlepower Distribution Curve of No. 2514F PANELITE with FRESNEL LENS PANEL taken in the plane normal to axes of fluorescent lamps.

STELLEX SIDE PANELS

All PANELITE Units are furnished standard with specially processed redirecting Prismatic STELLEX side panels in 48" lengths.

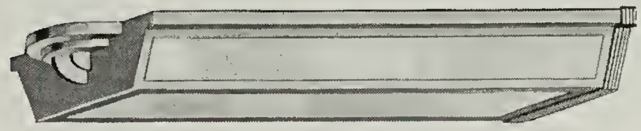
NOTE: SEE PAGE 7 FOR 50 FOOT-CANDLE TABLE, SPACING GUIDE FOR CONTINUOUS ILLUMINATION SYSTEMS AND PAGE 60 FOR COEFFICIENTS OF UTILIZATION.



Photometric Candelpower Distribution curve of No. 2514L PANELITE with LUSTREX GLASS, taken in the plane normal to axes of fluorescent lamps.

CONTINUOUS PANELITE FLUORESCENT

SYSTEM OF DIRECT ILLUMINATION



BASE PANELITE UNIT

Cat. No.	Lamps	Size	Depth	Glass
2514L	2—48"— 80W	11¾"x 4' 10"	5⅝"	Lustrex
2514F	2—48"— 80W	11¾"x 4' 10"	5⅝"	Fresnel

Finish: Satin Aluminum.
Reflecting Surfaces: Glossy White Enamel.
Includes two cast ornamental ends.

The PANELITE System of Illumination offers:

1. A luminous architectural element conforming to structural design.
2. Low installation cost utilizes existing outlets.
3. Shadowless illuminated ceilings.
4. Cool illumination.
5. Maintenance at a minimum—panels lift out.

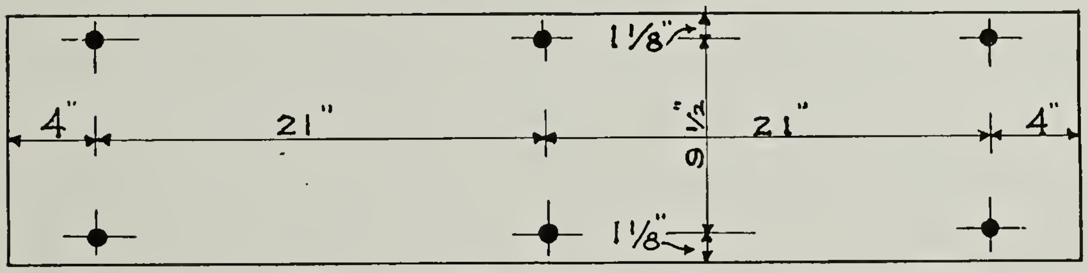
ASSEMBLY OF ARTICULATED PANELITE CONTINUOUS FLUORESCENT SYSTEM

• To assemble and order the PANELITE System, start with the BASE unit (No. 2514)—which has removable ornamental cast ends, one of which can be removed and used at the other end of the run—and add to this the desired number of STANDARD PANELITE sections (No. 2512) to complete the continuous PANELITE system of illumination to the desired length.

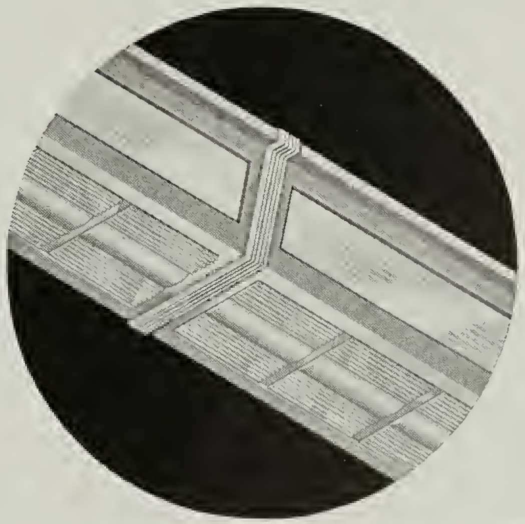
When ordering advise the number of elements in each continuous run.

The wire raceway is secured to the ceiling plate and hand-holes are provided to make final connections after units are aligned and secured to the ceiling. A bushed hole is provided through the ceiling plate to permit entry into each PANELITE element. All Standard sections, Base units, and AMCO Lens Booster Units are coupled together by means of bolts and wing nuts through the cast junction strap illustrated. The side panels then are put in place, lamps inserted and bottom panels slipped into position.

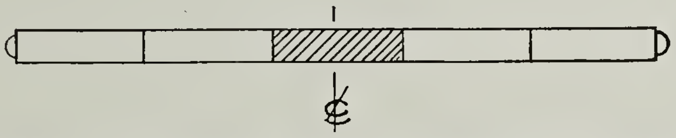
INSTALLATION



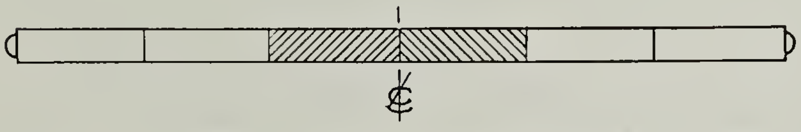
PANELITE is accompanied by a paper template of the ceiling pan showing locations of ¼" support holes, for exact positioning of expansion or toggle bolts on the ceiling. This template should be used on CENTER unit or units. Succeeding units are then added to each end equally for correct positioning on the ceiling for each continuous run. A ¾" knock-out for feed wires is provided at each end of the ceiling plate.



Illustrating the intersection of standard PANELITE sections where Polished Chrome Cast Junction straps are provided to seal and align the joint. One strap is included with each section, and is secured by means of bolts and wingnuts as described in the method of coupling.



To install an ODD number of units continuously, the template should be used on the center line of the center unit first, adding further sections to each end as illustrated.



To install an EVEN number of units continuously, the template should be used at the intersection of the two center units first, adding further sections to each end as illustrated.

NOTE: SEE PAGE 7 FOR 50 FOOTCANDLE TABLE, SPACING GUIDE FOR CONTINUOUS ILLUMINATION SYSTEMS AND PAGE 60 FOR COEFFICIENTS OF UTILIZATION.

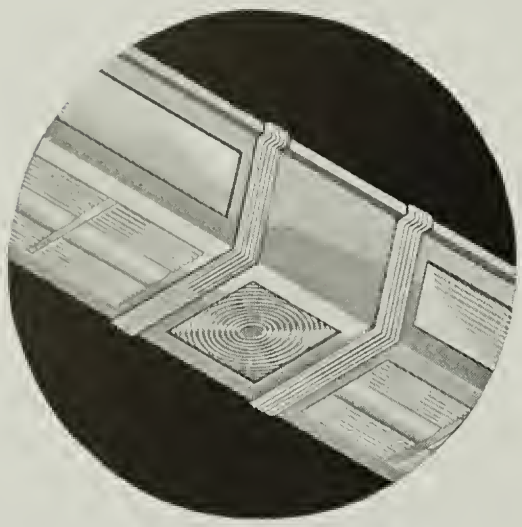
CAST END ORNAMENTS. At the terminus of each PANELITE continuous run, cast ornamental ends complete the articulated assembly. These cast Ornamental Ends are included with the BASE PANELITE unit from which one end is removed and used at the end of the run as described previously above.

CONTINUOUS PANELITE FLUORESCENT

SYSTEM OF DIRECT ILLUMINATION

Augmented by Incandescent Amco Lens Booster Units

•The introduction of Incandescent (filament) lamps in the Art Metal optical system of Direct Illumination in combination with Fluorescent, supplements the PANELITE System of Illumination. This blending of two entirely different kinds of light utilizes the predominant qualities of each, the fluorescent producing diffuse illumination with a vertical as well as a horizontal component and the Incandescent in the AMCO Lens Booster Unit, a precisely directed beam of light with high utilization. The Fluorescent Illumination is diffuse, cool and soft to which is added the punch, sparkle, warmth and power of Incandescent to produce a scintillating, lively effect with third dimensional depth. The controlled beams of light from the AMCO Lens Booster Units engineered in design to produce a complete secondary system of illumination is superimposed on the level of illumination produced by the Fluorescent Continuous PANELITE System. This superimposing of Incandescent illumination on the Fluorescent illumination results in a unique lighting innovation.



Above illustrates position of AMCO Lens Booster unit in relation to standard PANELITE Fluorescent units.

THE AMCO COLORISER LENS of The Art Metal Optical System of Direct Illumination is an optically correct Plano-Convex lens designed on the Fresnel principle. The lamp, lens and scientifically contoured specular alzak aluminum reflector, form a completely coordinated lighting unit.

SPECIFICATIONS

Cat. No.	Incandescent Lamps	Amco Lens	Ceiling Diam.
2516	1—100W	1—6" sq.	8x11¾" wide

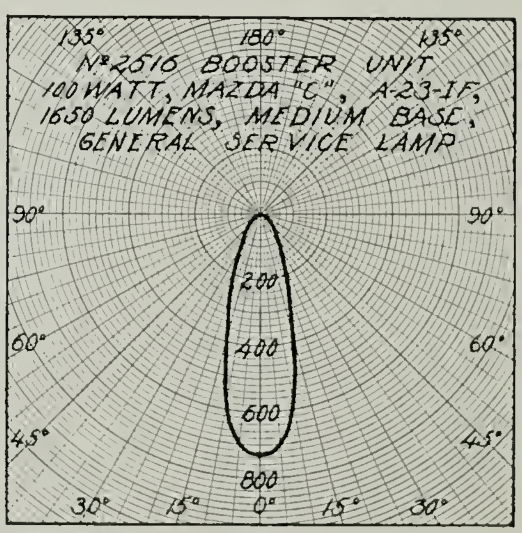
Finish: Satin Aluminum.
Lens: AMCO Coloriser.
Includes cast junction strap.

FEATURES OF COMBINATION LIGHTING

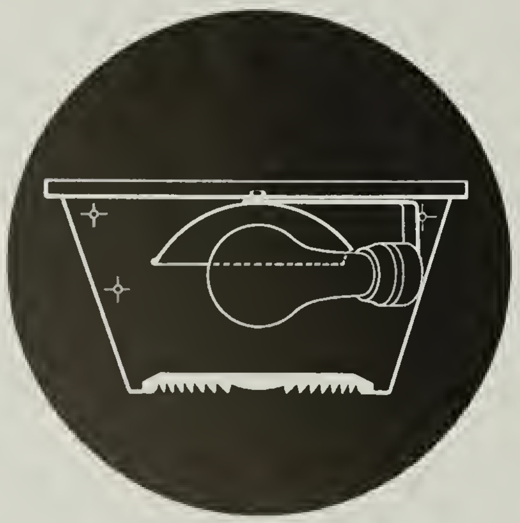
1. A luminous architectural element conforming to structural design with a means of plus or accent lighting an integral part of the system.

2. Utilization in continuous runs of the Fresnel optical lens principle with both Fluorescent and Incandescent lamps.

3. The steps or risers of the patented AMCO Coloriser Lens in the Booster unit are treated with color to harmonize with the color quality of the fluorescent panel.



Photometric candlepower distribution curve of No. 2516 AMCO Lens Booster unit with characteristic distribution.

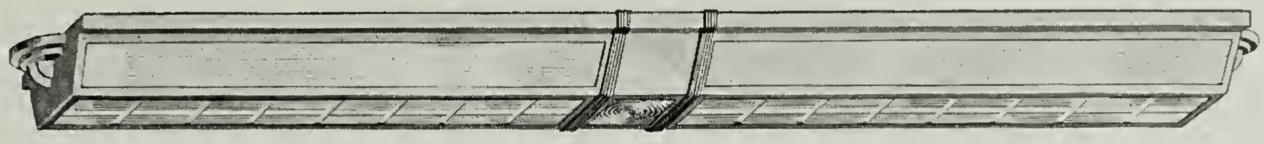


Section of No. 2516 Incandescent AMCO Lens Booster unit—showing lamp position in relation to reflector and AMCO Coloriser lens.

CONTINUOUS PANELITE FLUORESCENT

SYSTEM OF DIRECT ILLUMINATION

Augmented by Incandescent Amco Lens Booster Units

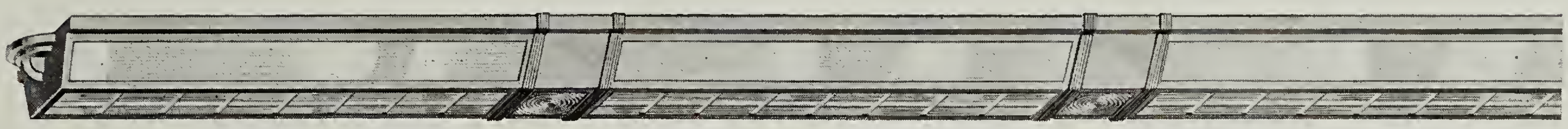


BASE PANELITE WITH BOOSTER

Cat. No.	Lamps	Size	Depth	Glass
2518L	4— 40W F 1—100W C	11¾″x 9′ 8″	5⅝″	Lustrex 1—6″ AMCO Lens
2518F	4— 40W F 1—100W C	11¾″x 9′ 8″	5⅝″	Fresnel 1—6″ AMCO Lens

Finish: Satin Aluminum.
Reflectors: Glossy White Enamel.
Note: Includes two cast end ornaments and junction straps.

NOTE: SEE PAGE 7 FOR 50 FOOTCANDLE TABLE, SPACING GUIDE FOR CONTINUOUS ILLUMINATION SYSTEMS AND PAGE 60 FOR COEFFICIENTS OF UTILIZATION.



ASSEMBLY OF ARTICULATED PANELITE WITH INCANDESCENT AMCO LENS BOOSTER UNITS

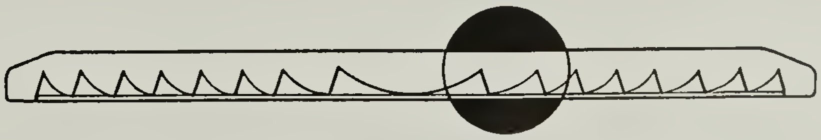
- To assemble and order continuous PANELITE with BOOSTER units, start with BASE PANELITE with BOOSTER (No. 2518) (which has removable ornamental cast ends, one of which can be removed and used at the other end of the run) and add to this the desired number of STANDARD PANELITE Sections (No. 2512) and BOOSTER units (No. 2516) to complete the continuous PANELITE System of Illumination to desired length.

When ordering advise the number of elements in each continuous run.

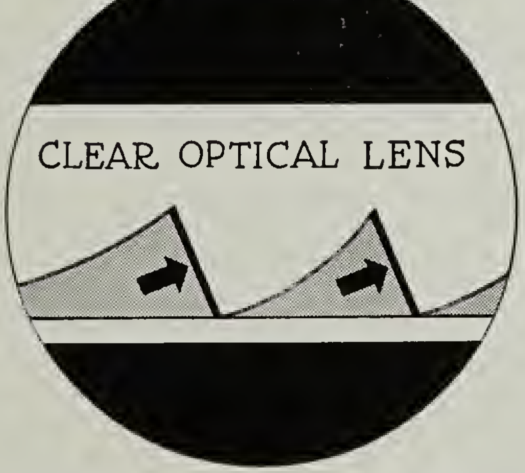
INSTALLATION

- Refer to installation instructions (bottom page 9) use the same method of center line positioning in the run except that the center line of the BOOSTER unit would be the center of the run in all cases where an EVEN number of Fluorescent Sections are used. BOOSTER Unit paper templates are also supplied.

AMCO COLORISER LENSES



Section of lens (enlarged segment in circle at left.)



Enlarged segment of AMCO Coloriser Lens—Arrows point to steps or risers treated with transluscent color, which softens the light at viewing angles, matching in color, the Fluorescent 3500° white or Daylight lamps.

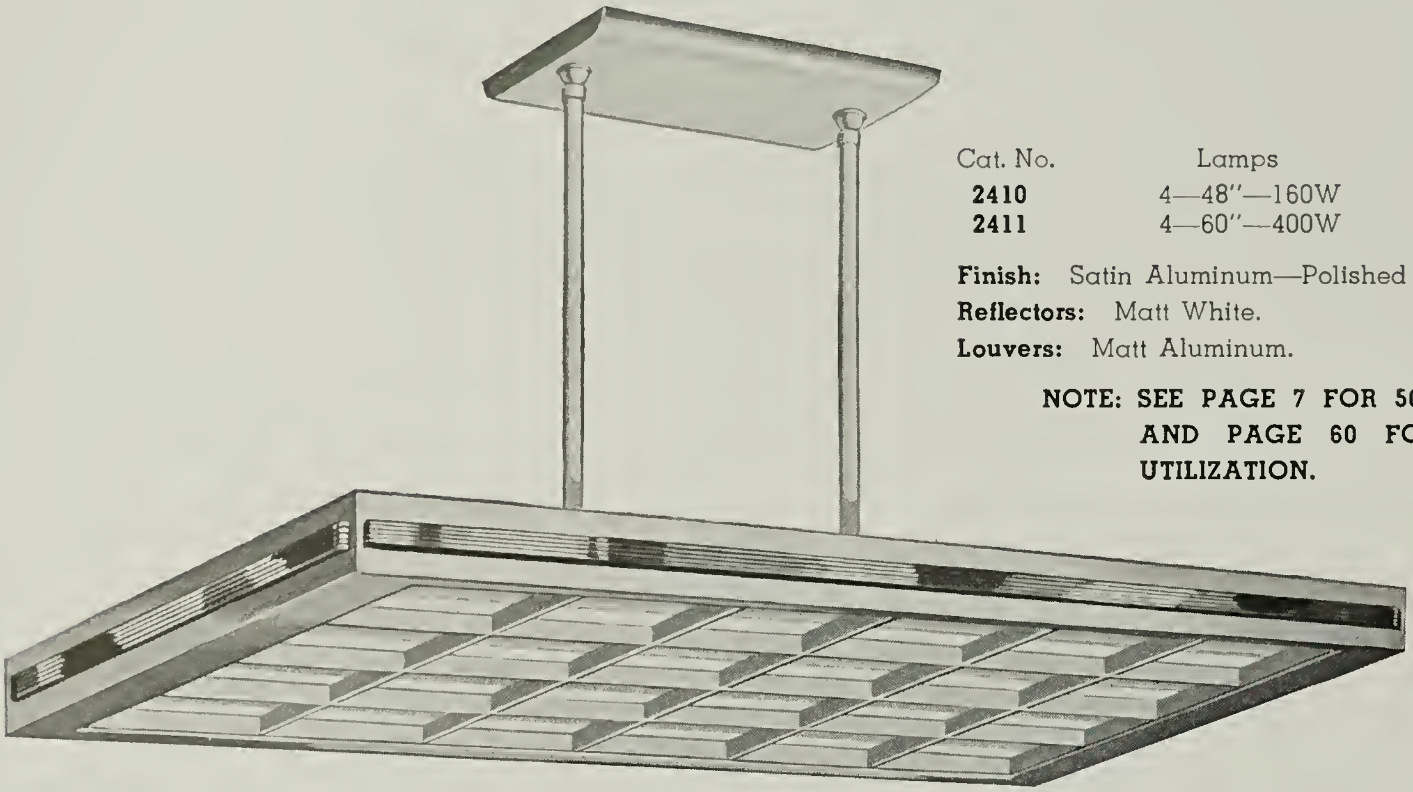
The AMCO COLORISER LENS features the treatment of the steps or risers of the lens with translucent color. The light in the main beam, is not affected by this patented treatment. This AMCO COLORISER LENS provides the visual appearance of blending the Incandescent light source with that of the Fluorescent in the PANELITE SYSTEM.

AMCO COLORISER LENSES come in two matching colors—

STANDARD—White—To blend with the 3500° white Fluorescent lamp.

OPTIONAL—Daylight—To blend with the Daylight Fluorescent lamp.

LOUVRLUX UNITS



Cat. No.	Lamps	Body Size	Length O.A.
2410	4—48"—160W	17"x50½"x3"	36"
2411	4—60"—400W	21"x63½"x5"	36"

Finish: Satin Aluminum—Polished Chrome Trim.
Reflectors: Matt White.
Louvers: Matt Aluminum.

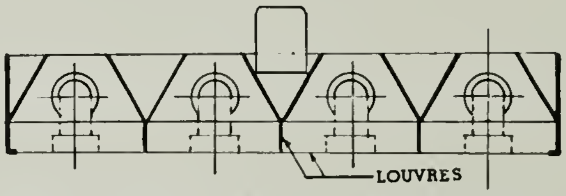
NOTE: SEE PAGE 7 FOR 50 FOOTCANDLE TABLE AND PAGE 60 FOR COEFFICIENTS OF UTILIZATION.

- The precise engineering of Louvrlux results in controlled illumination with maximum efficiency and widespread distribution. Through unique construction, each lamp has its own individual reflector, designed for maximum spread of illumination. The top of the reflector is open to facilitate relamping.

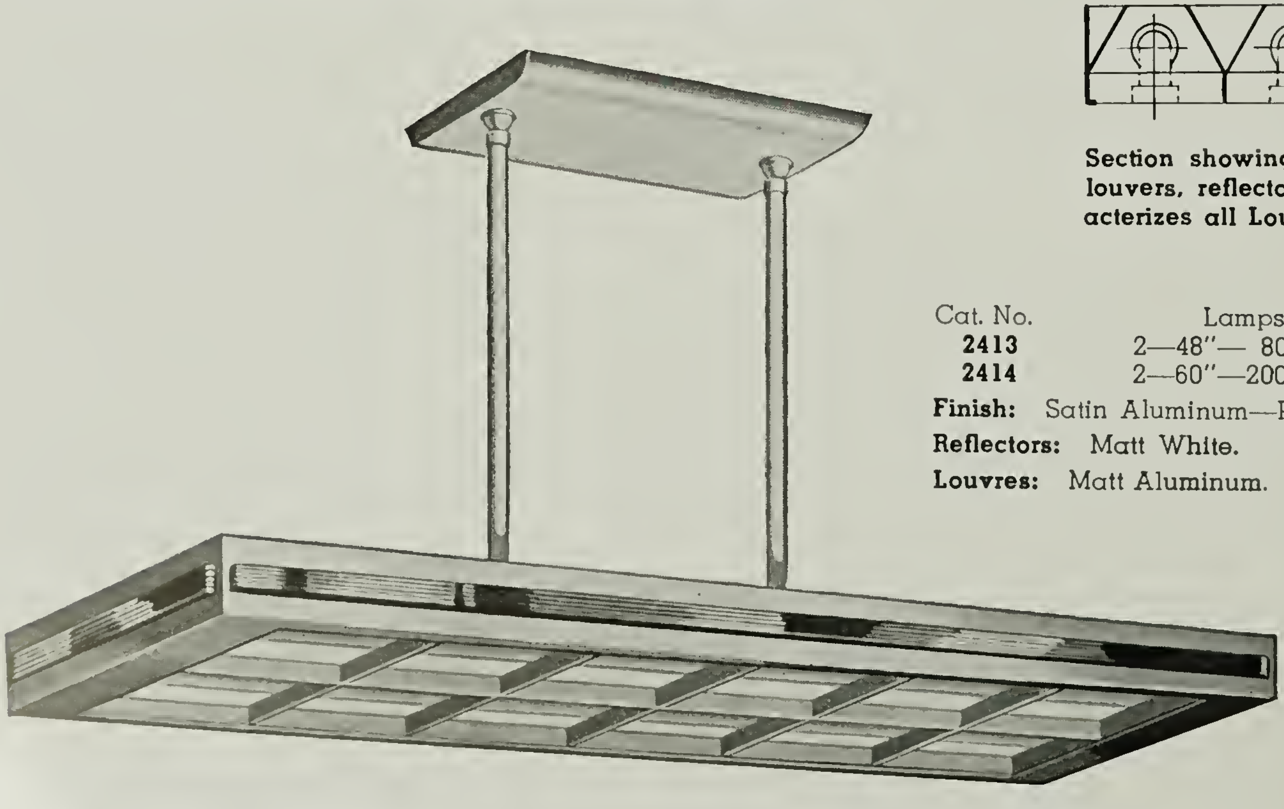
The engineered design of the reflectors and louvers directs 60% of the total output of the luminaire downward and 40% upward. The louvers of units for the T-12 lamps, have a 25° shielding angle and the units for T-17 lamps have a shielding angle of 45° normal and 25° lengthways to the axes of the lamps. The reflectors are finished matt white enamel and the louvers are satin aluminum. The effect is pleasing as the maximum brightness on the louvers is but 1.3 candles per square inch. The unit is finished in satin aluminum and highlighted with polished chromium trim.

The rugged construction of the complete luminaire is excellent from the standpoint of maintenance. The reflecting surfaces are downward and dust drops unhindered through the bottom.

- **Units for 40 watt fluorescent lamps are 3" deep and those for 100 watt lamps are 5" deep providing the shallowest construction possible for this type of fluorescent fixture.**



Section showing relative position of lamp, louvers, reflectors and ballasts. This characterizes all Louvrlux Units.

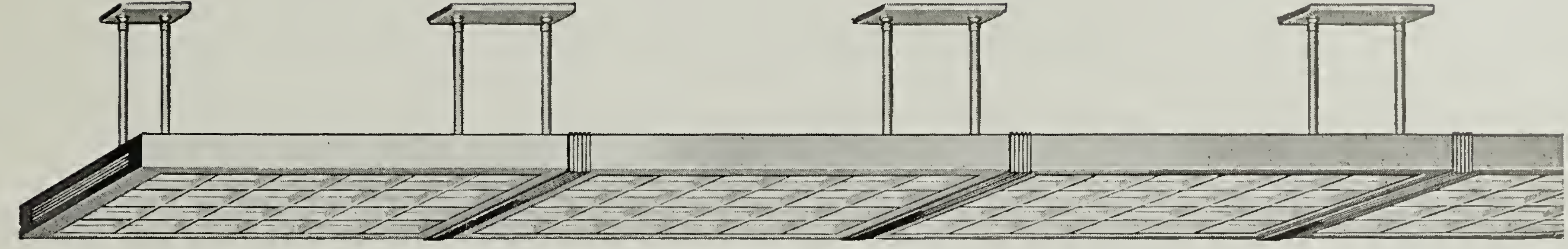


Cat. No.	Lamps	Unit Size	Unit Depth	Length O.A.
2413	2—48"— 80W	8½"x50½"	3"	36"
2414	2—60"—200W	10½"x63½"	5"	36"

Finish: Satin Aluminum—Polished Chrome Trim.
Reflectors: Matt White.
Louvres: Matt Aluminum.

LOUVRLUX UNITS ARE PATENTED

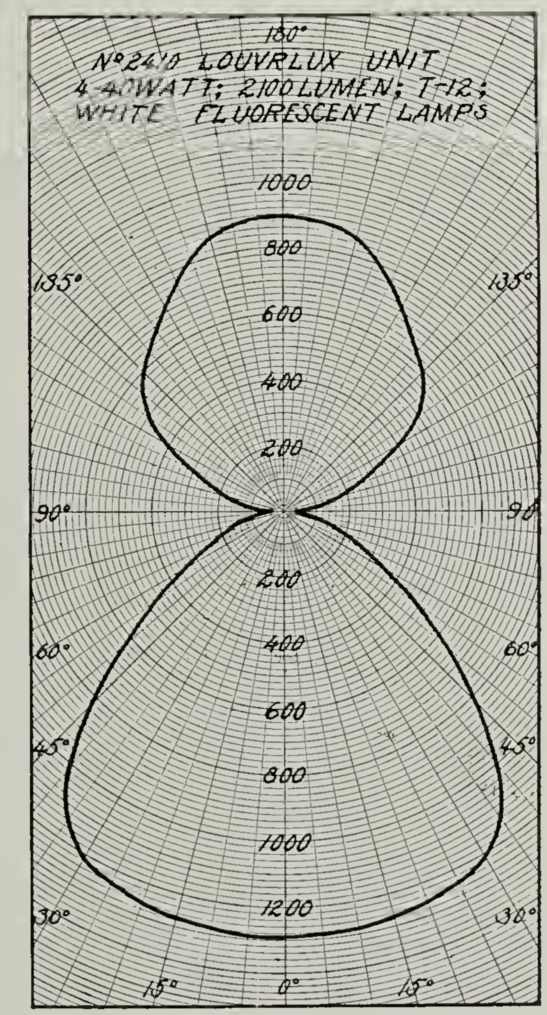
LOUVRLUX CONTINUOUS SYSTEM OF ILLUMINATION



ARTICULATED LOUVRLUX SUSPENDED CONTINUOUS SYSTEM

- A continuous Fluorescent lighting system suspended to any desired length from the ceiling. This continuous system utilizes the same principles of illumination as Louvrlux Units illustrated and described on the opposite page. Made only for two and four parallel lamps.

NOTE: SEE PAGE 7 FOR 50 FOOTCANDLE TABLE, SPACING GUIDE FOR CONTINUOUS ILLUMINATION SYSTEMS AND PAGE 60 FOR COEFFICIENTS OF UTILIZATION.



Photometric candlepower distribution curve of No. 2410 in plane normal to axes of lamps. This characterizes all Louvrlux Units and all sections of the Louvrlux Continuous System.

END SECTIONS

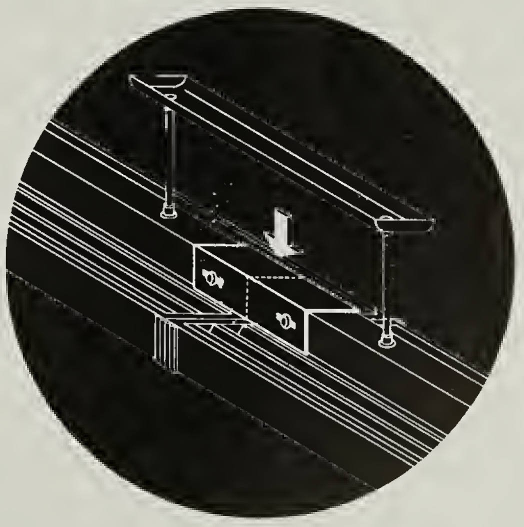
Cat. No.	Lamps	Body Size	Length O.A.
2521	2—48"— 80W	8½"x50½"x3"	36"
2522	4—48"—160W	17" x50½"x3"	36"
2523	2—60"—200W	10½"x63½"x5"	36"
2524	4—60"—400W	21" x63½"x5"	36"
INSIDE SECTIONS			
2525	2—48"— 80W	8½"x50½"x3"	36"
2526	4—48"—160W	17" x50½"x3"	36"
2527	2—60"—200W	10½"x63½"x5"	36"
2528	4—60"—400W	21" x63½"x5"	36"

Finish: Satin Aluminum—Polished Chrome Trim.

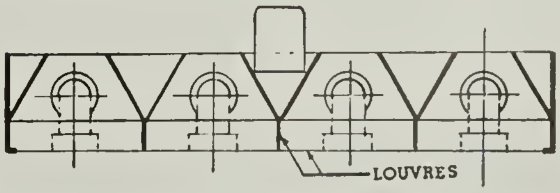
Reflectors: Matt White.

Louvers: Matt Aluminum.

● Units for 40 watt fluorescent lamps are 3" deep and those for 100 watt lamps are 5" deep providing the shallowest construction possible for this type of fluorescent fixture.



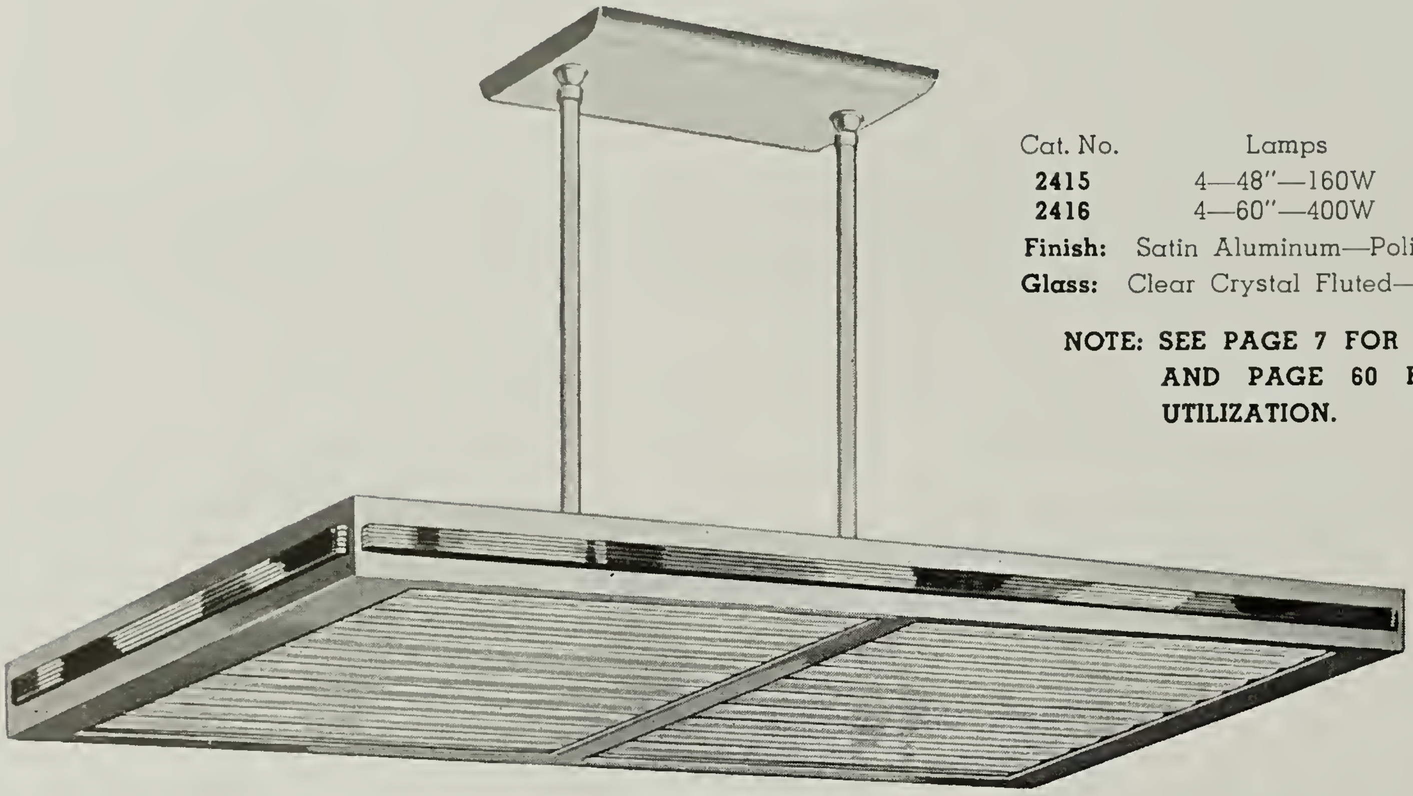
Detail looking down on junction of Louvrlux Continuous System—hangers and wire-way are aligned first then locked with an inverted U channel strap indicated by arrow—simplifying wiring and installation.



Section showing relative position of lamp, louvers, reflectors and ballasts. This characterizes all sections of the Louvrlux Continuous System.

LOUVRLUX UNITS ARE PATENTED

EQUALUX UNITS



Cat. No.	Lamps	Body Size	Length O.A.
2415	4—48"—160W	17"x50½"x3"	36"
2416	4—60"—400W	21"x63½"x5"	36"

Finish: Satin Aluminum—Polished Chrome Trim.

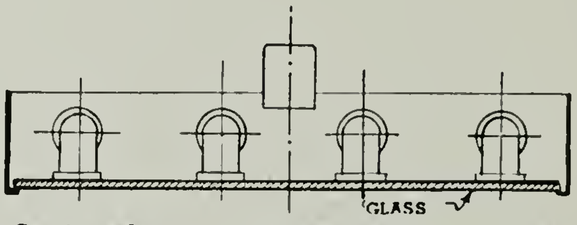
Glass: Clear Crystal Fluted—Simulating Louvering.

NOTE: SEE PAGE 7 FOR 50 FOOTCANDLE TABLE AND PAGE 60 FOR COEFFICIENTS OF UTILIZATION.

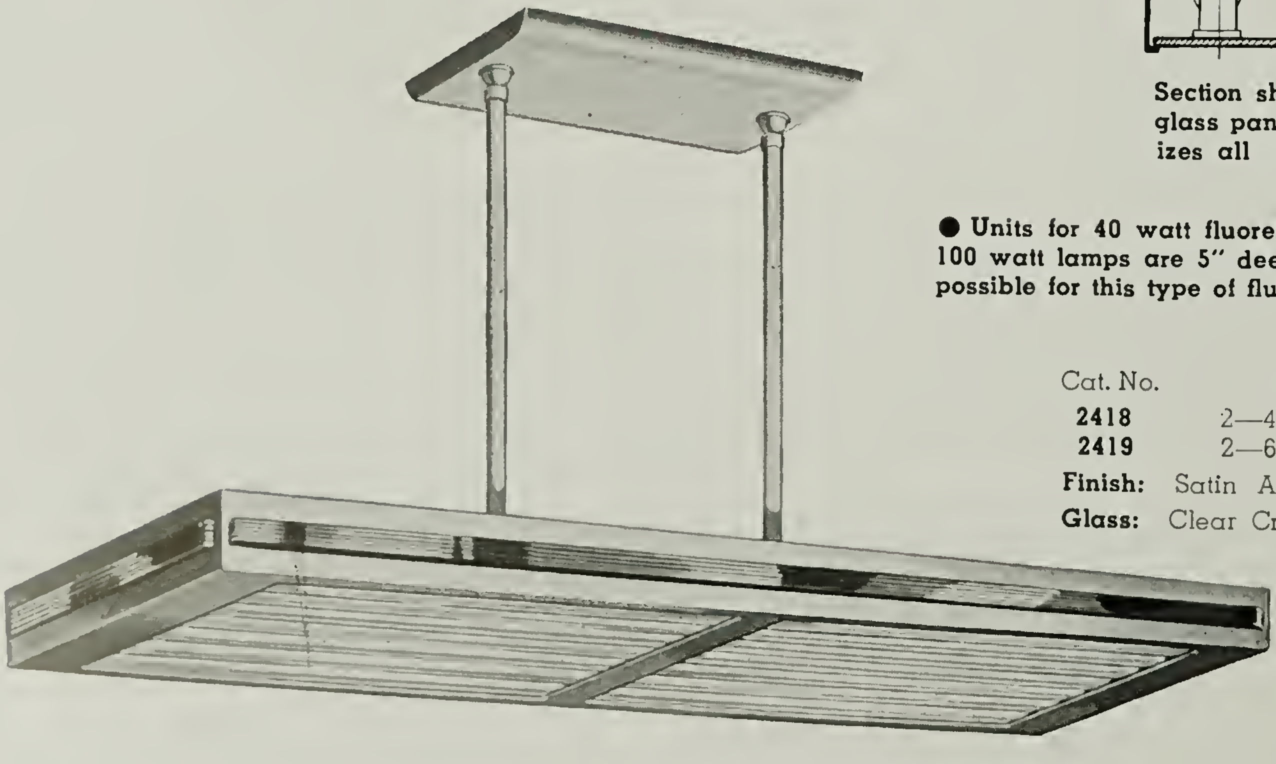
- Equalux Units have the direct-indirect characteristics of light distribution. Approximately half of the total light output from these units is upward, while the other half is redirected to the working plane.

The extreme shallow design of the Equalux Units gives refined styling. A unique fluted glass bottom panel imparts sparkle, animation and eye appeal. The fluted glass panel has a crystal finish and the prism effect of the flutes controls the downward component of light from the luminaire. At the high angles from the vertical, the glass simulates louvers and presents a uniformly lighted appearance. The brightness on the fluted glass is very low above the critical angle of 45°.

Equalux Units are finished satin aluminum and a trim of polished chromium highlights the sides matching the polished appearance of the fluted glass. Equalux Units are excellent for smart sophisticated locations where quality and quantity of illumination in refined styling is desired.



Section showing relative position of lamps, glass panel and auxiliaries. This characterizes all Equalux Units.



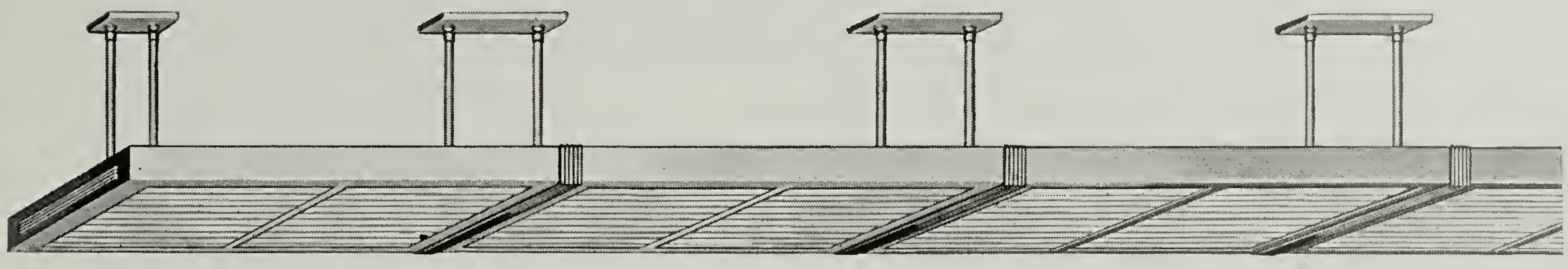
- **Units for 40 watt fluorescent lamps are 3" deep and those for 100 watt lamps are 5" deep providing the shallowest construction possible for this type of fluorescent fixture.**

Cat. No.	Lamps	Unit Size	Unit Depth	Length O.A.
2418	2—48"— 80W	8½"x50½"	3"	36"
2419	2—60"—200W	10½"x63½"	5"	36"

Finish: Satin Aluminum—Polished Chrome Trim.

Glass: Clear Crystal Fluted—Simulates Louvering.

EQUALUX CONTINUOUS SYSTEM OF ILLUMINATION



ARTICULATED EQUALUX SUSPENDED CONTINUOUS SYSTEM

- A continuous Fluorescent lighting system, suspended to any desired length from the ceiling. This continuous system utilizes the same principles of illumination as Equalux Units illustrated and described on the opposite page. Made only for two and four parallel lamps.

NOTE: SEE PAGE 7 FOR 50 FOOTCANDLE TABLE, SPACING GUIDE FOR CONTINUOUS ILLUMINATION SYSTEMS AND PAGE 60 FOR COEFFICIENTS OF UTILIZATION.

END SECTIONS

Cat. No.	Lamps	Body Size	Length O.A.
2530	2—48"— 80W	8½"x50½"x3"	36"
2531	4—48"—160W	17" x50½"x3"	36"
2532	2—60"—200W	10½"x63½"x5"	36"
2533	4—60"—400W	21" x63½"x5"	36"

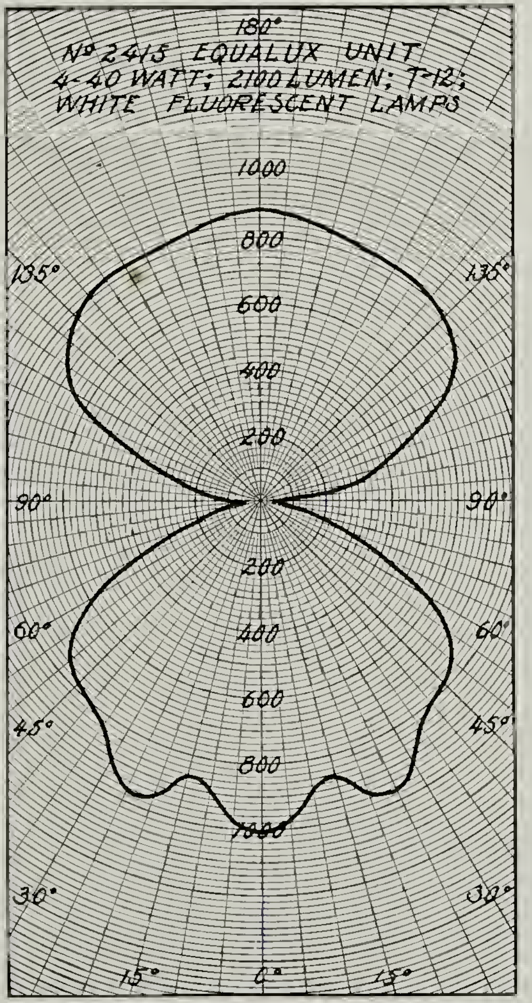
INSIDE SECTIONS

Cat. No.	Lamps	Body Size	Length O.A.
2534	2—48"— 80W	8½"x50½"x3"	36"
2535	4—48"—160W	17" x50½"x3"	36"
2536	2—60"—200W	10½"x63½"x5"	36"
2537	4—60"—400W	21" x63½"x5"	36"

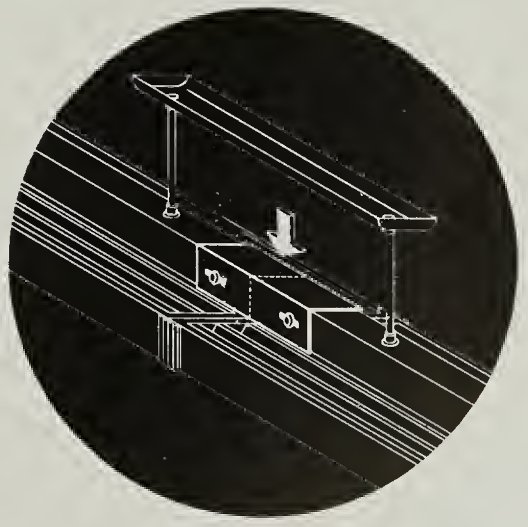
Finish: Satin Aluminum—Polished Chrome Trim.

Glass: Clear Crystal Fluted—Simulates Louvering.

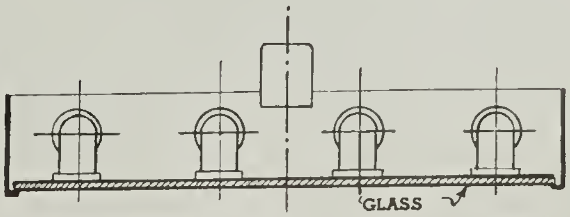
- **Units for 40 watt fluorescent lamps are 3" deep and those for 100 watt lamps are 5" deep providing the shallowest construction possible for this type of fluorescent fixture.**



Photometric candlepower distribution curve of No. 2415 in plane normal to axes of lamps. This characterizes all Equalux Units and all sections of the Equalux Continuous System.



Detail looking down on junction of Equalux Continuous System—hangers and wire-way are aligned first then locked in an inverted U channel strap, indicated by arrow, simplifying wiring and installation.

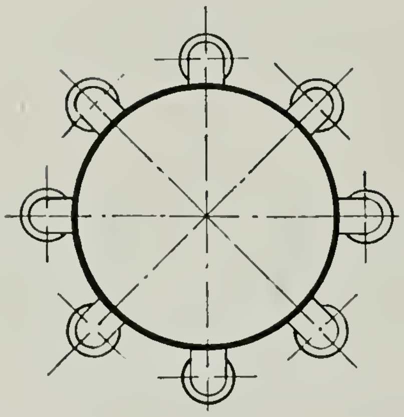


Section showing relative position of lamps, glass panel and auxiliaries. This characterizes all sections of the Equalux Continuous System.

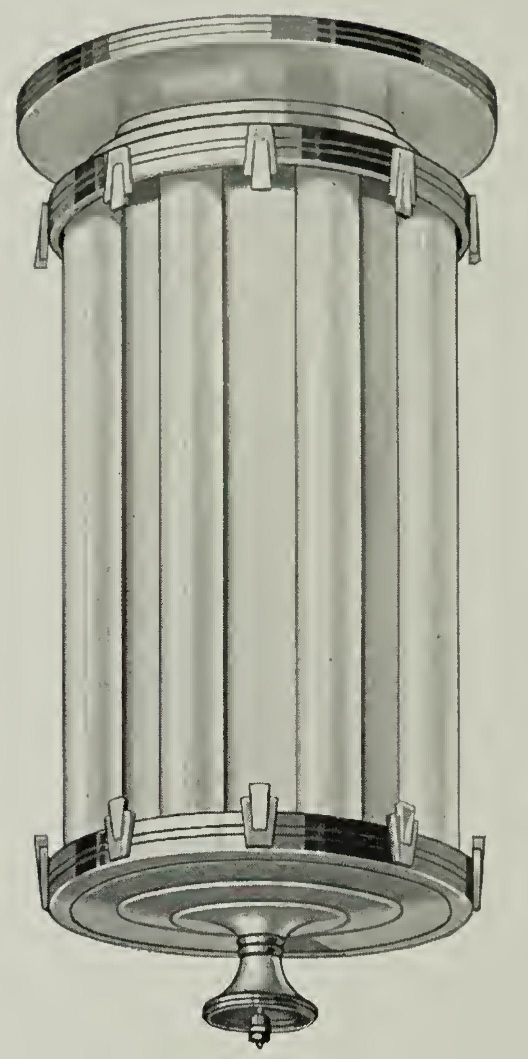
COLONNADE UNITS

Cat. No.	Lamps	O.A. Dia	Length O.A.
2421	8—48"—320W	14¼"	7'-0"

Finish: Satin Aluminum—Gold Trim.
Reflecting Surface: Matt White.



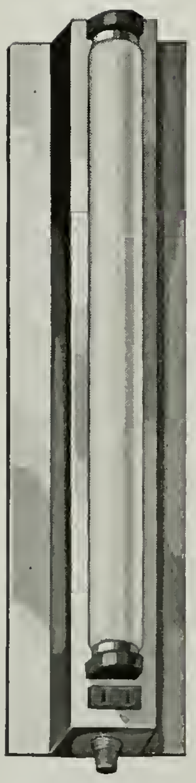
Section (covering both units on this page) showing lamp positions.



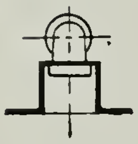
Cat. No.	Lamps	O.A. Dia.	Length O.A.
2423	8—24"—160W	14¼"	36"
2425	8—48"—320W	14¼"	60"

Finish: Satin Aluminum—Gold Trim.
Reflecting Surface: Matt White.

WALL BRACKETS



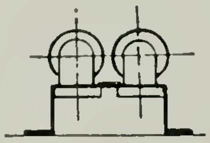
No. 2434C



SECTION

Cat. No.	Lamps	Length	Width
2434C	1—18"—15W	20"	4"
2435C	1—24"—20W	26"	4"

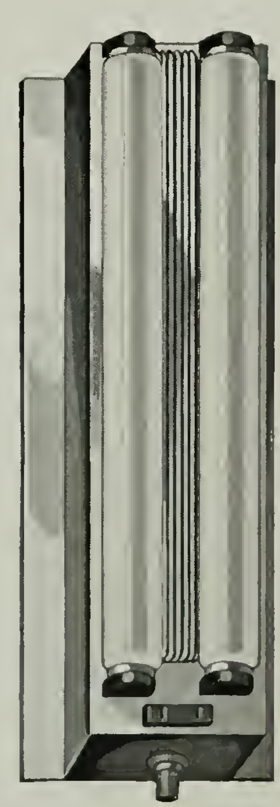
WITH Pin Switch and Convenience Outlet
Finish: Polished Chrome.



SECTION

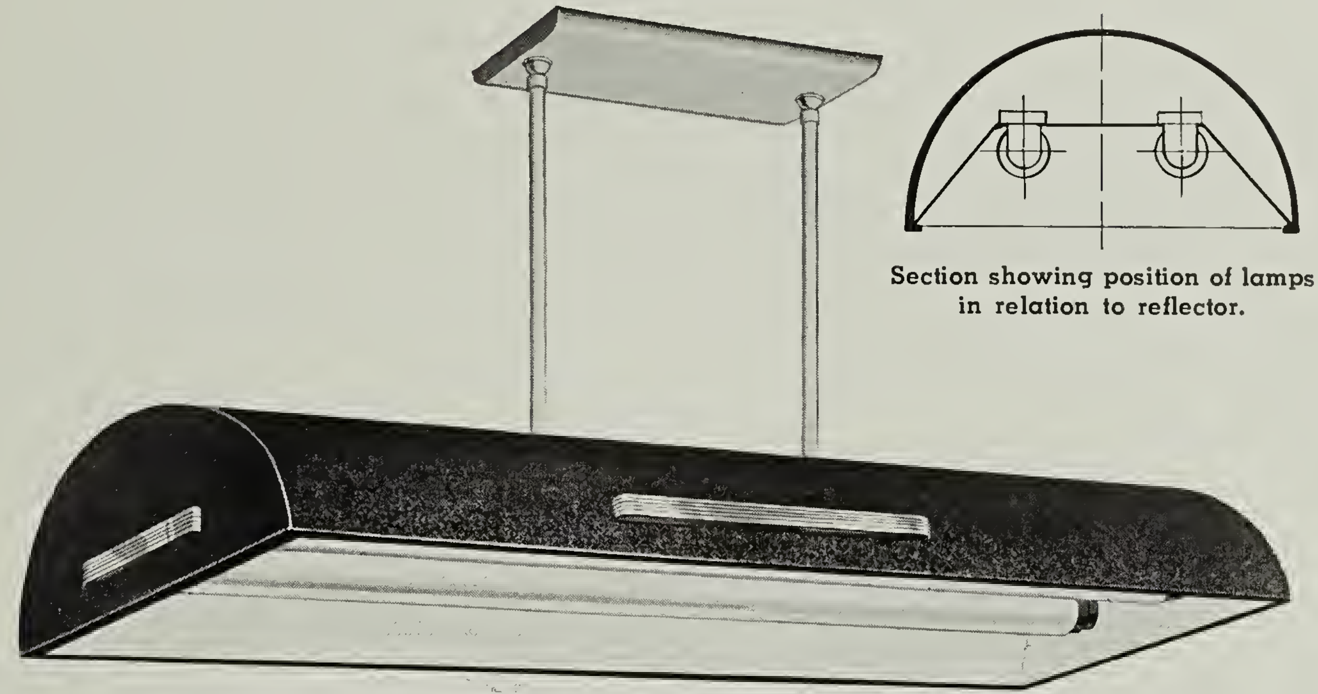
Cat. No.	Lamps	Length	Width
2436C	2—18"—30W	20"	5¼"
2437C	2—24"—40W	26"	6¼"

WITH Pin Switch and Convenience Outlet
Finish: Polished Chrome.



No. 2436C

SPECIFIC UNIT

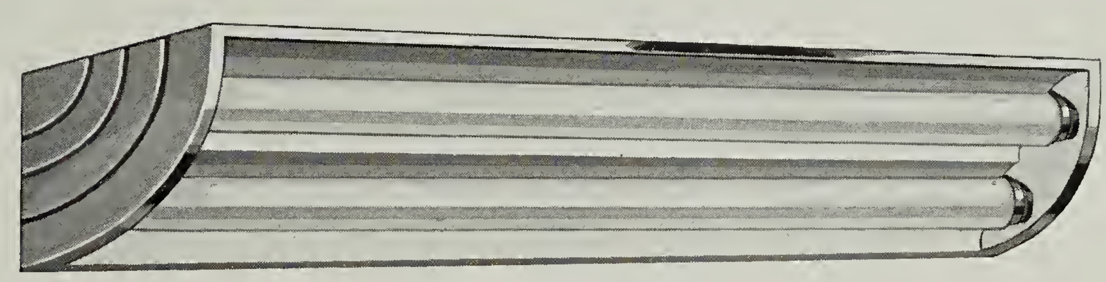


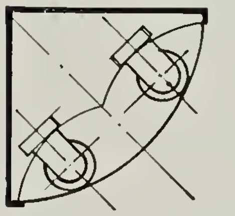
Section showing position of lamps
in relation to reflector.

A Direct Lighting Unit for Industrial and Commercial Applications.

Cat. No	Mazda F Lamps	Unit Size	Length O.A.
2455	2—48"—80W	12¼"x48¼"x6"	36"
2456	2—48"—80W	12¼"x48¼"x6"	Portable

Note: Portable Unit furnished with 8 ft. cord and plug and 2—6 ft. lengths of jack chain.
Finish: Crackled Black—Polished Chrome Trim.
Reflector: Matt White. 88% R.F.



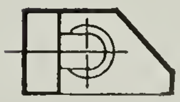


Section of No. 2444

SHOW WINDOW

Cat. No.	Lamps	Size
2444	2—24"—40W	6"x6"x24½"
2446	2—48"—80W	6"x6"x48½"

Finish: Satin Aluminum. **Reflector:** Matt White.

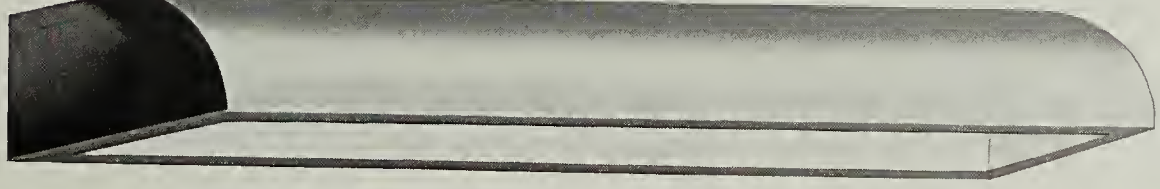


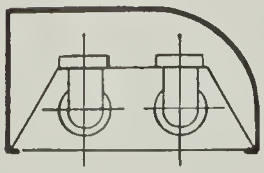
Section of No. 2448

UTILITY BRACKET

Cat. No.	Lamps	Depth	Length	Extends
2448	1—24"—20W	2⅝"	24½"	4½"
2450	1—48"—40W	2⅝"	48½"	4½"

Finish: Satin Aluminum. **Reflecting Surface:** Matt White.





Section of No. 2454

BANK CAGE, MIRROR, DRESSING ROOM, ETC.

Cat. No.	Lamps	Depth	Length	Extends
2453	2—36"—60W	4¾"	36½"	8¼"
2454	2—48"—80W	4¾"	48½"	8¼"

Finish: Satin Aluminum. **Reflector:** Matt White.

GERMICIDAL LAMP EQUIPMENT

FOR THE REDUCTION OF AIR-BORNE BACTERIA

● Wherever people congregate infection may be carried by air-borne bacteria—in offices—schools—hospitals—hotels—stores and all public buildings. The use of ultraviolet energy emitted by Germicidal lamps will not completely eliminate the possibility of contracting disease communicable by air-borne bacteria, but it is a proven fact that possible infection can be materially reduced by placing units at points of maximum air circulation — over doors — windows — sidewalls—and on high cases—cabinets or ledges. Because of their small size and low visible light output, Germicidal units blend unobtrusively with ordinary room furnishings.

WHAT ULTRAVIOLET DOES

In sunlight there are three general classes of radiant energy—INFRARED, which is invisible but produces heat, VISIBLE radiation or light which enables us to see, and ULTRAVIOLET which is invisible but gives us sunburn and tan in the summertime. The only difference in these types of energy is the length of their waves. The infrared are longest, the visible are shorter, and the ultraviolet are still shorter.

The ultraviolet energy that we receive from the sun is known as "near" ultraviolet—it is near to visible light. Shorter waves, known as "far" ultraviolet, are probably cut off by the atmosphere surrounding the earth. Careful research has proved beyond question that these shorter wavelengths of ultraviolet will kill air-borne bacteria, provided that the bacteria are exposed to energy of sufficient intensity for a long enough period of time.

LAMP CHARACTERISTICS

Germicidal Lamps Start and Operate On
110-125 Volt—60 Cycle AC Current

The efficiency of Germicidal lamps is effected by humidity and temperature. At normal room temperature and humidity, sanitary ventilation equivalent to 100 air changes per hour is obtainable with an electrical imput to Germicidal lamps of only 1 to 2 watts per 100 cubic feet of room volume. This range of energy input is dependent upon the ceiling height above the mounting position of the equipment.

Art Metal has developed equipment for two efficient sources of this lethal or Germicidal energy for both the 15 and 30 watt Germicidal lamps. The 15 watt, T-8 lamp is 18 inches overall while the 30 watt, T-8 lamp is 36 inches overall. With a low wattage consumption, these lamps produce a quantity of potent ultraviolet energy which kills bacteria in the shortest time interval. Installed properly with a good reflector and cleaned regularly, Germicidal lamps are an important aid in the fight against communicable disease.

ART METAL GERMICIDAL APPLICATIONS

This equipment is offered in four models for specific uses:—

1. (No. 2540-1) INDIRECT for use on high cases, cabinets or between baby cubicles.
   This model DIRECT can be used over Surgical dressing tables, etc.
   Symmetric distribution.
2. (No. 2542-3) UTILITY INDIRECT for use on side walls.
   Asymmetric distribution.
3. (No. 2544-5) CURTAIN-DIRECT-INDIRECT for use over doors, windows and ward partitions.
   Asymmetric distribution.
4. (No. 2546-7) DIRECT TYPE for use in air ducts—concealed from view.

INSTALLATION

Germicidal lamps should be installed under competent engineering supervision. Complete information about these lamps and their applications can be obtained from our Engineering Department.

MAINTENANCE

It is essential to keep the lamps and reflectors clean. Very slight films of dust or dirt, and particularly grease, materially reduce the germicidal output of the lamp and reflector. It is recommended that a regular cleaning schedule be set up in connection with any installation of the lamps.

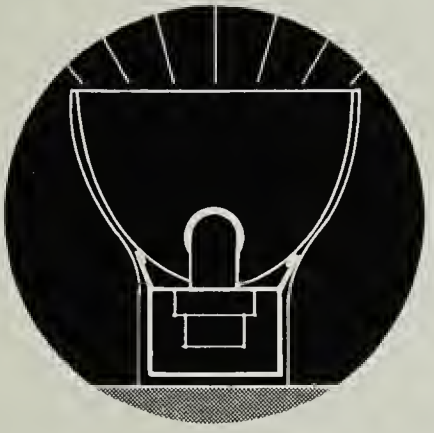
CAUTION

The ultraviolet energy emitted by the Germicidal lamp can produce sunburn on bare skin closely exposed to the lamp. Direct viewing of the lamps for a considerable period is harmful to the eyes. Therefore the lamps should not be installed where they will shine directly into anyone's eyes, nor should bare skin be exposed for an appreciable length of time within the direct radiation of the lamps at close range.

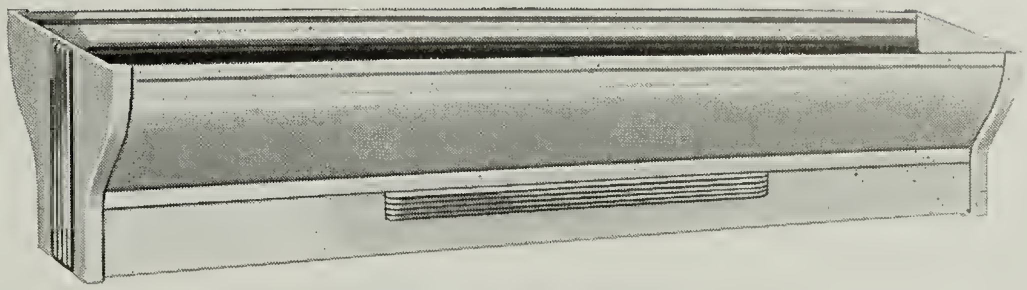
The first three types shown opposite should not be mounted less than 6'-0" from the floor. The last type (No. 2546-7) should never be used except in locations where positive shielding from the eyes is certain.

GERMICIDAL LAMP EQUIPMENT

FOR THE REDUCTION OF AIR-BORNE BACTERIA



Section of No. 2540

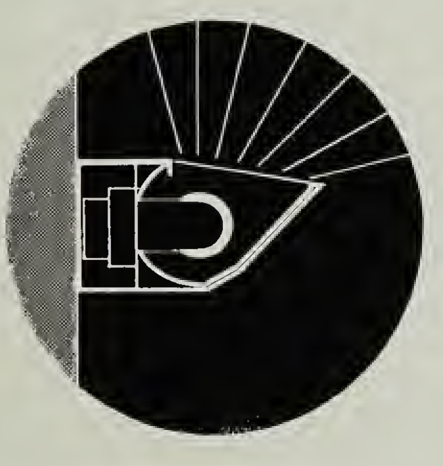


INDIRECT OR DIRECT

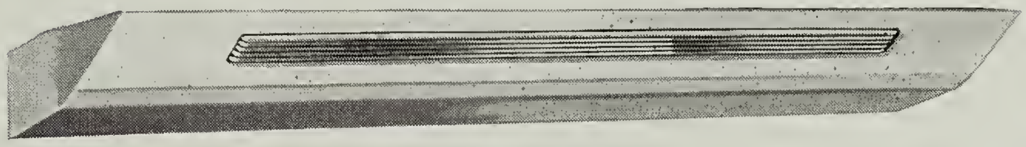
For use on cabinets and cases.

Cat. No.	Watts	Size	Ht. O.A.
2540	15	5½" x 18½"	5¾"
2541	30	5½" x 36½"	5¾"

Finish: Satin Aluminum—Chrome Trim
Reflector: (symmetric) Polished Chrome



Section of No. 2542

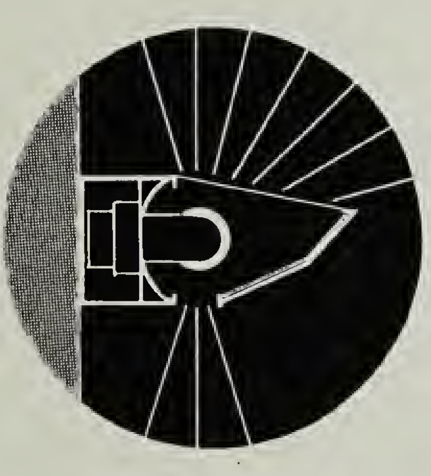


UTILITY INDIRECT

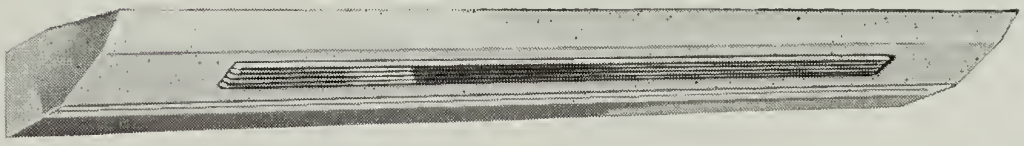
For use on side walls.

Cat. No.	Watts	Size
2542	15	5½" x 18½"
2543	30	5½" x 36½"

Finish: Satin Aluminum—Chrome Trim
Reflector: (asymmetric) Polished Chrome
Note: Keyhole slot supports



Section of No. 2544

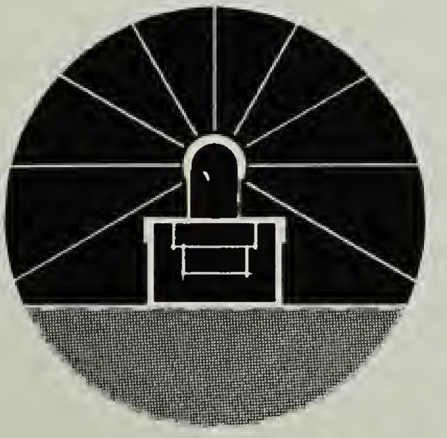


CURTAIN—DIRECT—INDIRECT

For use over doors and windows.

Cat. No.	Watts	Size
2544	15	5½" x 18½"
2545	30	5½" x 36½"

Finish: Satin Aluminum—Chrome Trim
Reflector: (asymmetric) Polished Chrome
Note: Keyhole slot supports



Section of No. 2546

DIRECT TYPE

For use in air ducts—concealed from view.

Cat. No.	Watts	Size
2546	15	2½" x 19"
2547	30	2½" x 37"

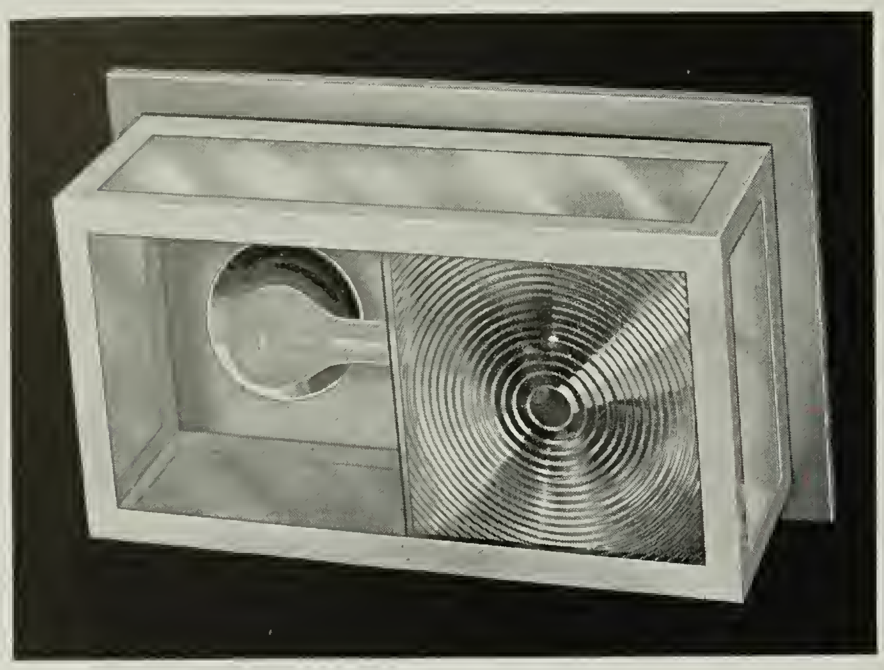
Finish: Aluminum
Knock Outs furnished both ends

NOTE—ABOVE UNITS CAN BE FURNISHED WITH 8 FT. CORD AND PLUG ON REQUEST.

THE ART METAL OPTICAL SYSTEM OF DIRECT ILLUMINATION

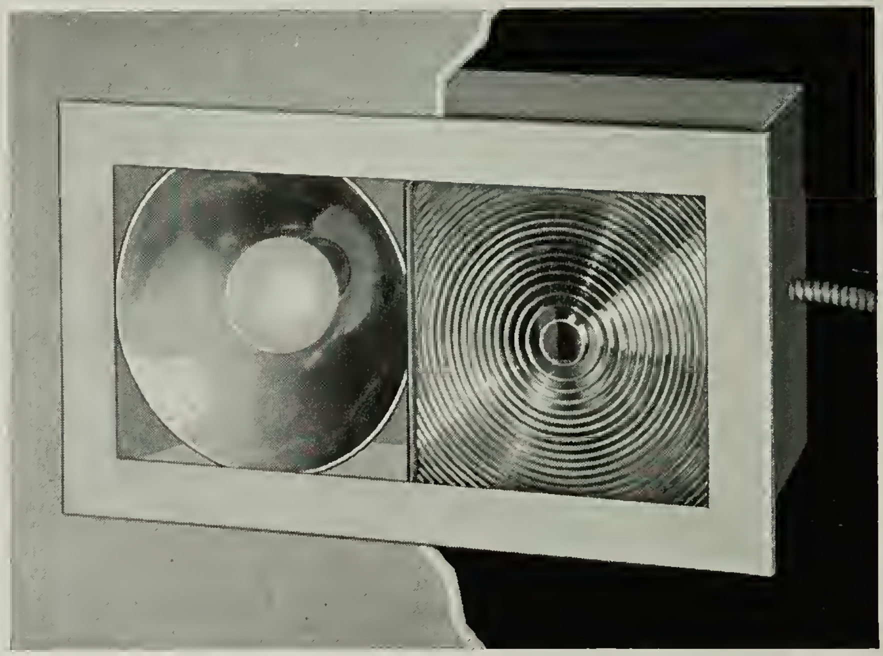
● The Art Metal Optical System of Direct Illumination utilizes the AMCO Lens which is an optically correct plano-convex lens designed on the Fresnel principle and a co-ordinating scientifically contoured specular Alzak aluminum reflector. These elements are housed in a steel box which is either recessed into the ceiling with the lens flush to the ceiling, or is mounted directly on the ceiling, as illustrated.

Higher levels of illumination are obtainable with this system, as the light of the lamp is directed into predetermined areas by a precisely formed reflector and a refracting lens of finest quality glass. A further advantage of this system is that the illumination is not dependent on the color of the ceiling or walls. This produces a lighting system with a high coefficient of utilization.



EXPOSED UNIT No. 468

Exterior view of two light unit showing one lens removed which illustrates the optical assembly characteristic of the Art Metal Optical System with horizontal lamp position.



RECESSED UNIT No. 451

Exterior view of recessed two light unit showing one lens and the ceiling partially removed which illustrates the optical assembly characteristic of the Art Metal Optical System for vertical lamp position.

FOUR REGULATED TYPES OF ILLUMINATION ARE AVAILABLE WITH THE ART METAL OPTICAL SYSTEM OF DIRECT ILLUMINATION

1. **GENERAL LIGHTING**: An even spread of illumination.
2. **ACCENT LIGHTING**: Higher intensity of illumination to attract attention to special display areas.
3. **COMBINATION LIGHTING**: An even spread of illumination plus accent lighting. This is obtained by laying out a basic system of general illumination and then adding accent lighting in specific locations.
4. ***HIGHLIGHTING**: A precisely directed beam of light illuminating only the object of interest.

*Effective Highlighting (offset positioning of the lamp) requires special engineering of individual elements to insure proper coverage of displays. Information and detail for these special applications should be forwarded our Illuminating Engineering Department for layout, as beam sizes and direction are specifically set in the equipment.

METHODS FOR ILLUMINATION CALCULATION

General illumination values for The Art Metal Optical System may be computed by the Lumen Method of Calculation. This method indicates a general average figure meeting most requirements. The formulae for the Lumen Method is given on pages 57, 58 and 59. The pertinent information necessary such as the Coefficients of Utilization is given on page 62; the Room Indices are given on page 59.

The Point by Point Method of Calculation should be used for accurate figures of illumination. The formulae for this method of calculation and all necessary data thereto is given on pages 62 and 63. The Candlepower values are given on pages illustrating the various units. This method must be used for computing the intensity of the necessary candlepower beam or the illumination value obtainable with Accent Lighting or Highlighting.

THE ART METAL OPTICAL SYSTEM OF DIRECT ILLUMINATION

The units of this system are adaptable to any style of architecture. They create a cool effect and become an integral part of a room. They harmonize with all interiors and lend spaciousness and dignity to the surroundings.

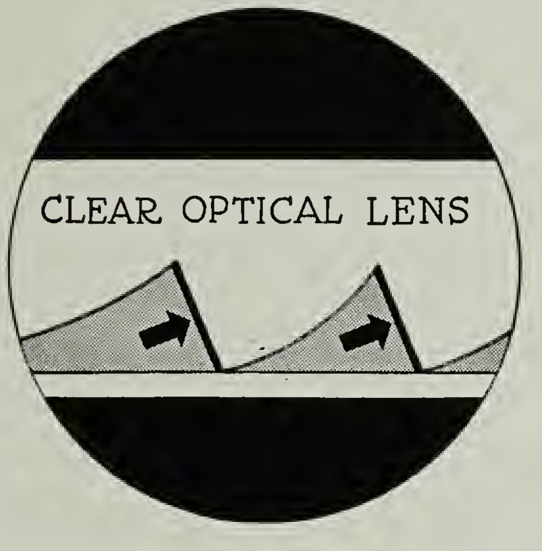
This system gives permanent performance and has unlimited life. It is available in either Exposed or Recessed types of units. The units are reasonably dust-tight so that maintenance is reduced to relamping.

The Recessed type unit consists of the reflector, socket, and lamp housed in a steel box. This box is recessed into the ceiling with only the lens and finishing trim apparent on the ceiling.

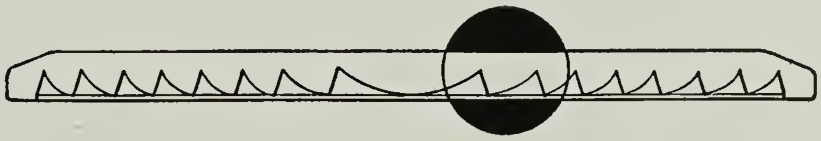
The Exposed type unit is mounted directly to the ceiling, and is composed of the same elements as comprise the Recessed unit. This type gives illumination on the ceiling through the Flashed Opal Glass side panels. These units are particularly adaptable to re-lighting installations.

ILLUSTRATING THE EXCLUSIVE FEATURE OF AMCO *Coloriser Lenses . . .*

A PATENTED COLOR TREATMENT SUPPLEMENTING THE AMCO CLEAR CRYSTAL LENS



Enlarged segment of AMCO Coloriser Lens—Arrows point to steps or risers treated with translucent color, which softens the spilled light at viewing angles.



Section of lens (enlarged segment in circle at left.)

The AMCO COLORISER LENS features the treatment of the steps or risers of the lens with translucent color. The light in the main beam, is not affected by this patented treatment.

COLOR SELECTION

● The standard color of AMCO Coloriser Lenses is Ivory. Other colors — Golden Buff, Deep Yellow, Bright Red, Ultra Blue or White and Black are available (but not stocked). Coloriser Lenses in Platinum or Gold can be had on special order. There is a slight additional charge for colors other than standard.

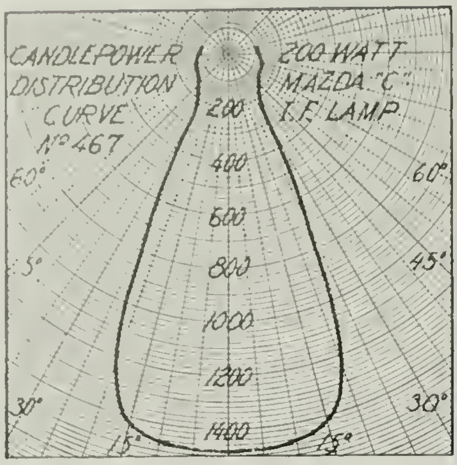
THE ADVANTAGES OF COLORISER LENSES

● AMCO Coloriser Lenses are plano-convex Fresnel lenses with the vertical steps or risers treated with a translucent color. The Coloriser Lens has the function of softening or diffusing spilled-light at high angles from the nadir.

The softening of spilled-light is accomplished through absorption or diffusion by the Coloriser steps, producing a minimum low surface brightness on the lens. This absorption or diffusion does not materially affect the main beam candle power. The AMCO Coloriser Lens transmits the light in the beam undistorted and unmodified.

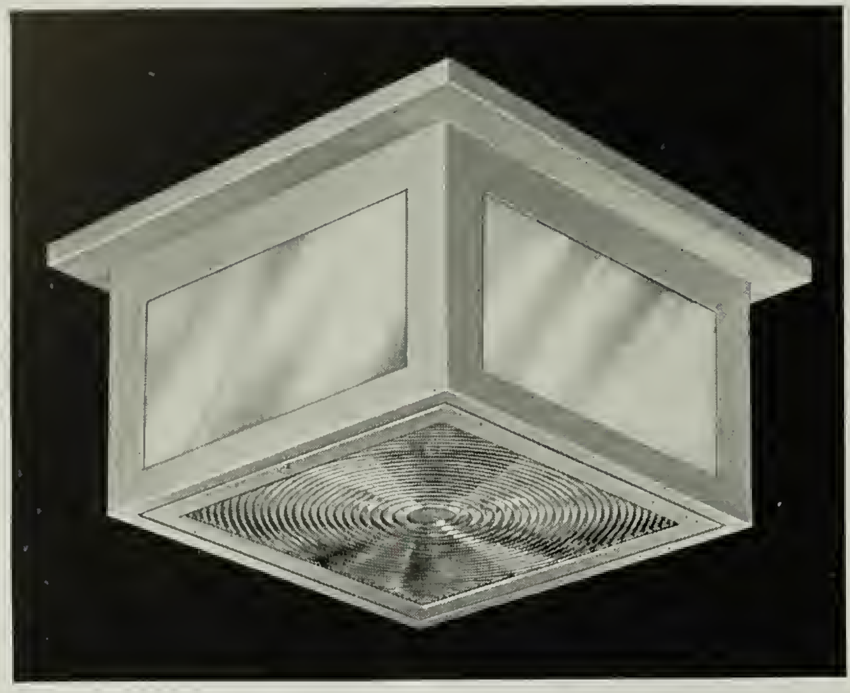
A unique and pleasing appearance in direct lighting is produced with the application of color on the steps or risers of the lens. This allows the architect or decorator to harmonize with interior color schemes with no appreciable sacrifice in efficiency to the lighting system. Subtle psychological effects that interiors may require can be obtained with AMCO Coloriser Lenses.

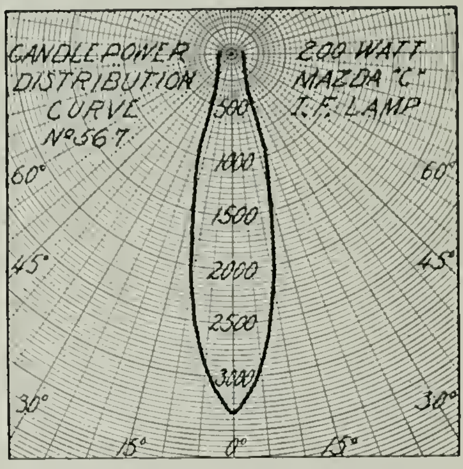
EXPOSED UNITS—12" AMCO LENSES



CANDLEPOWER DISTRIBUTION CURVE UNIT No. 467:

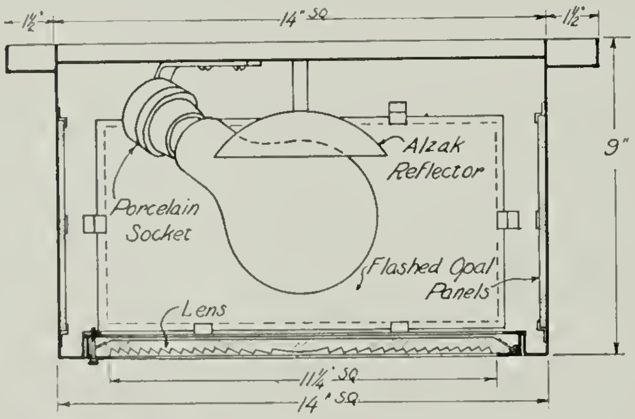
This candlepower distribution curve was made with a One-light unit using a 200 Watt I. F. Lamp. To arrive at candlepower values for 300 Watt Medium Base Lamp multiply by 1.62. Illumination values of the Two-light and Four-light units are respectively twice and four times that value derived from the One-light unit. The distribution of light is extremely wide. The spacing of the units should not exceed one and one quarter times the mounting height above the working plane. This type of unit is for general illumination.




CANDLEPOWER DISTRIBUTION CURVE No 567
200 WATT MAZDA "C" I.F. LAMP
500
1000
1500
2000
2500
3000
60°
45°
30°
15°
0°

CANDLEPOWER DISTRIBUTION CURVE UNIT No. 567:

This candlepower distribution curve was made with a One-light unit using a 200 Watt I. F. Lamp. To arrive at candlepower values for a 300 Watt Medium Base Lamp multiply by 1.62. Illumination values of the Two-light and Four-light units are respectively twice and four times that value derived from the One-light unit. The distribution of light is concentrating. The spacing of the units should not exceed 0.9 times the mounting height above the working plane. This type of unit is for general illumination in high ceiling areas or locations where Accent Lighting is desired.



SPECIFICATIONS: The cross-section illustrates the typical construction of the Exposed units with 12" AMCO Lenses. The lamps operate in a horizontal position. The side panels are Flashed Opal Glass. The spherical reflector is made of 20 gauge Aluminum and finished specular Alzak. One and Two-light units are constructed of .037 steel—face trim .05 steel. Four-light units are constructed entirely of .05 steel. One-light boxes and face trim are one-piece stampings. All boxes are treated inside and outside with a base coat of Red Oxide Primer to prevent corrosion. The interior of the box is aluminized. Adequate knockouts are provided. Units are practically dust-tight. Mounting to the ceiling is by means of expansion shields or toggle bolts. All units approved by Underwriters' Laboratories, Inc. Inside Frosted Lamps are recommended.

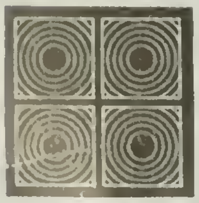
DATA

				OVER-ALL DIMENSIONS ON CEILING		
Cat. No.	Distribution Characteristic	Lens Size	★ Max. Watts	Length	Width	Depth
467	Widespread	12"	300	17"	17"	9"
467C	Coloriser Widespread	12"	300	17"	17"	9"
567	Concentrating	12"	300	17"	17"	9"
567C	Coloriser Concentrating	12"	300	17"	17"	9"

One Lamp—Position Horizontal. Hinged Door.

				OVER-ALL DIMENSIONS ON CEILING		
Cat. No.	Distribution Characteristic	Lens Size	★ Max. Watts	Length	Width	Depth
468	Widespread	12"	600	28½"	17"	9"
468C	Coloriser Widespread	12"	600	28½"	17"	9"
568	Concentrating	12"	600	28½"	17"	9"
568C	Coloriser Concentrating	12"	600	28½"	17"	9"

Two Lamp—Position Horizontal. Lens Plates Slip in from Bottom.

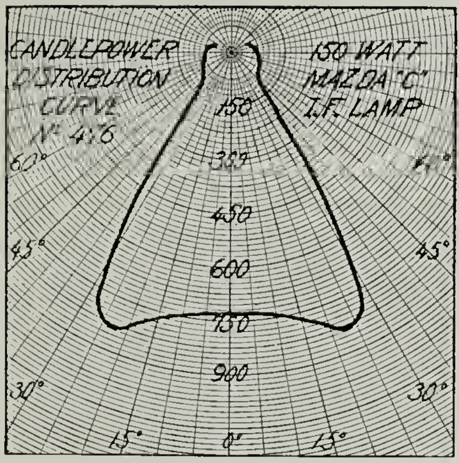


				OVER-ALL DIMENSIONS ON CEILING		
Cat. No.	Distribution Characteristic	Lens Size	★ Max. Watts	Length	Width	Depth
470	Widespread	12"	1200	28½"	28½"	9"
470C	Coloriser Widespread	12"	1200	28½"	28½"	9"
570	Concentrating	12"	1200	28½"	28½"	9"
570C	Coloriser Concentrating	12"	1200	28½"	28½"	9"

Four Lamp—Position Horizontal. Lens Plates Slip in from Bottom.

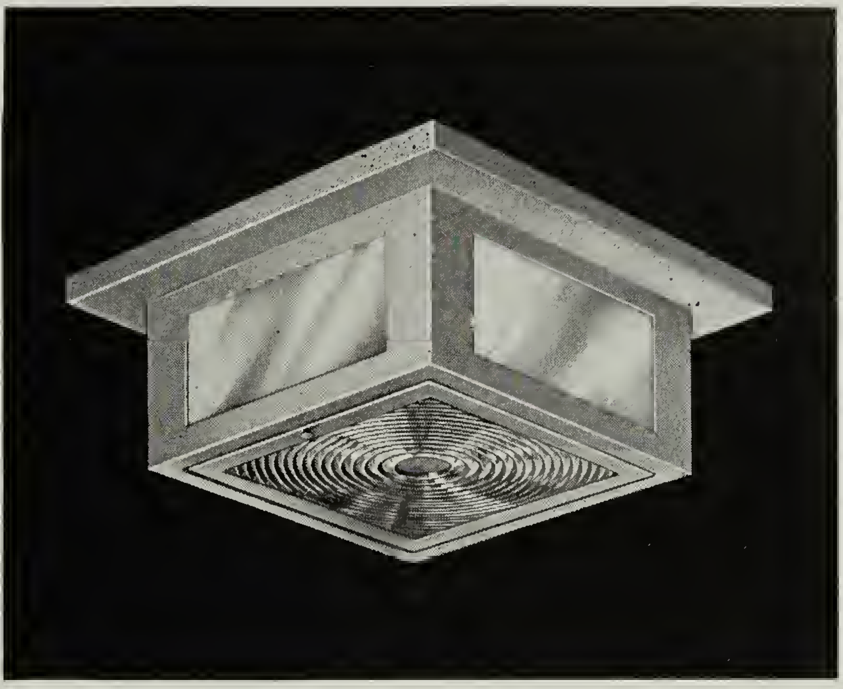
Standard Finish: Satin Aluminum. **Coloriser Lens:** Ivory. ★ 300 Watt Medium Base.

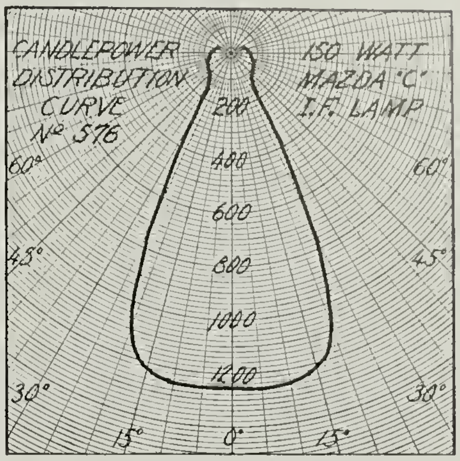
EXPOSED UNITS—8" AMCO LENSES



CANDLEPOWER DISTRIBUTION CURVE UNIT No. 476:

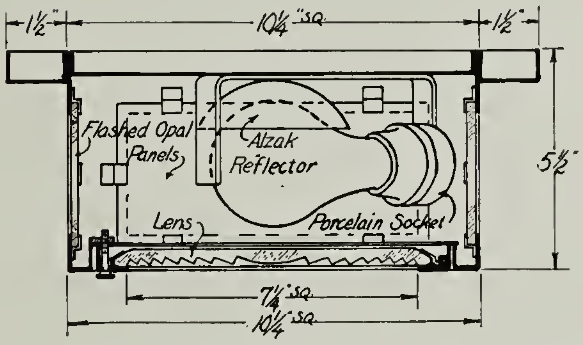
This candlepower distribution curve was made with a One-light unit using a 150 Watt I. F. Lamp. Illumination value of the Two-light unit is twice that value derived from the One-light unit. The distribution of light is extremely wide. The spacing of the units should not exceed one and one quarter times the mounting height above the working plane. This type of unit is for general illumination.




CANDLEPOWER DISTRIBUTION CURVE Nº 576
150 WATT MAZDA "C" I.F. LAMP
200
400
600
800
1000
1200
60°
60°
45°
45°
30°
30°
15°
0°
15°

CANDLEPOWER DISTRIBUTION CURVE UNIT No. 576:

This candlepower distribution curve was made with a One-light unit using a 150 Watt I. F. Lamp. Illumination value of the Two-light unit is twice that value derived from the One-light unit. The distribution of light is concentrating. The spacing of the units should not exceed 0.9 times the mounting height above the working plane. This type of unit is for general illumination in high ceiling areas or locations where Accent Lighting is desired.



SPECIFICATIONS: The cross-section illustrates the typical construction of the Exposed Units with 8" AMCO Lenses. The lamps operate in a horizontal position. The side panels are Flashed Opal Glass. The spherical reflector is made of 20 gauge Aluminum and finished specular Alzak. These units are constructed of .037 steel—face trim .05 steel. One-light boxes and face trim are one-piece stampings. All boxes are treated inside and outside with a base coat of Red Oxide Primer to prevent corrosion. The interior of the box is aluminized. Adequate knockouts are provided. Units are practically dust-tight. Mounting to the ceiling is by means of expansion shields or toggle bolts. All units approved by Underwriters' Laboratories, Inc. Inside Frosted Lamps are recommended.

DATA

Cat. No.	Distribution Characteristics	Lens Size	Max. Watts	OVERALL DIMENSIONS ON CEILING Length	Width	Depth
476	Widespread	8"	150	13¼"	13¼"	5½"
476C	Coloriser Widespread	8"	150	13¼"	13¼"	5½"
576	Concentrating	8"	150	13¼"	13¼"	5½"
576C	Coloriser Concentrating	8"	150	13¼"	13¼"	5½"

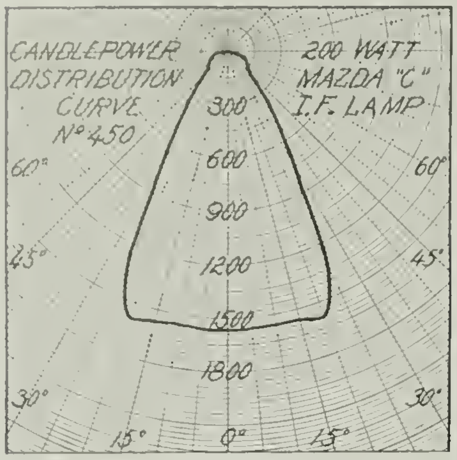
One Lamp—Position Horizontal. Hinged Door.

Cat. No.	Distribution Characteristics	Lens Size	★ Max. Watts	OVERALL DIMENSIONS ON CEILING Length	Width	Depth
477	Widespread	8"	300	21⅛"	13¼"	5½"
477C	Coloriser Widespread	8"	300	21⅛"	13¼"	5½"
577	Concentrating	8"	300	21⅛"	13¼"	5½"
577C	Coloriser Concentrating	8"	300	21⅛"	13¼"	5½"

Two Lamp—Position Horizontal. Lens Plates Slip in from Bottom.

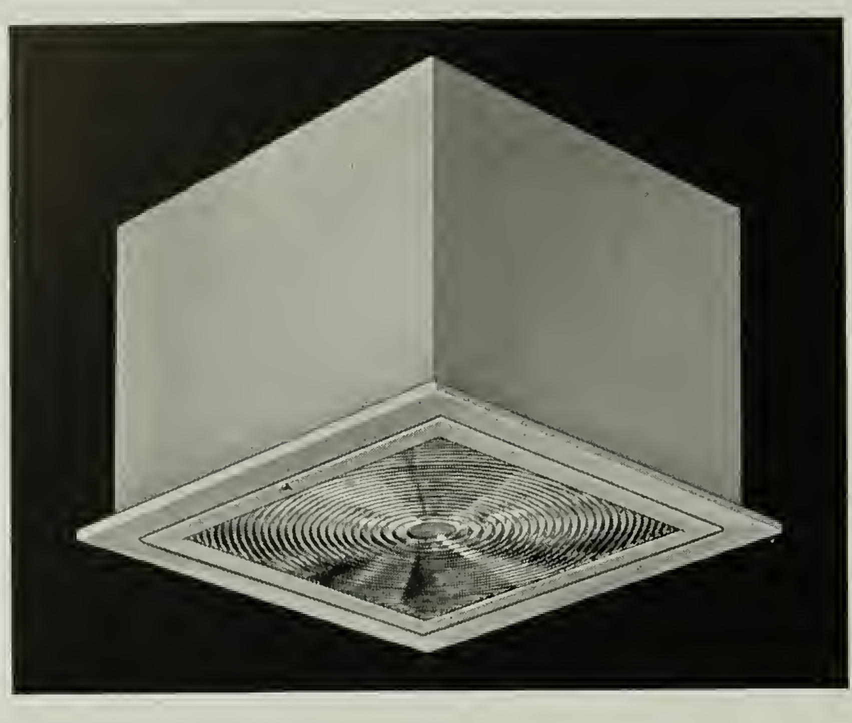
Standard Finish: Satin Aluminum. **Coloriser Lens:** Ivory. ★ 2-150W Medium Base.

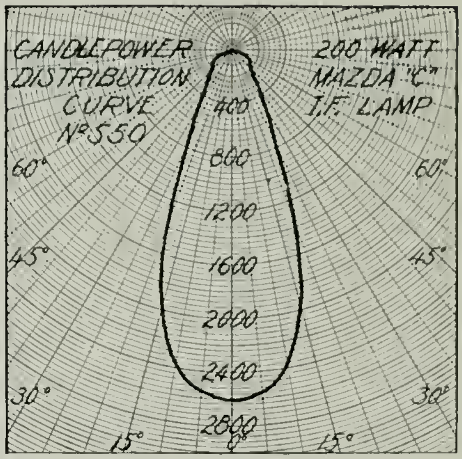
RECESSED UNITS—12" AMCO LENSES



CANDLEPOWER DISTRIBUTION CURVE UNIT No. 450:

This candlepower distribution curve was made with a One-light unit using a 200 Watt I. F. Lamp. To arrive at candlepower values for 300 Watt Medium Base Lamp multiply by 1.62. Illumination values of the Two-light and Four-light units are respectively twice and four times that value derived from the One-light unit. The distribution of light is extremely wide. The spacing of the units should not exceed one and one quarter times the mounting height above the working plane. This type of unit is for general illumination.

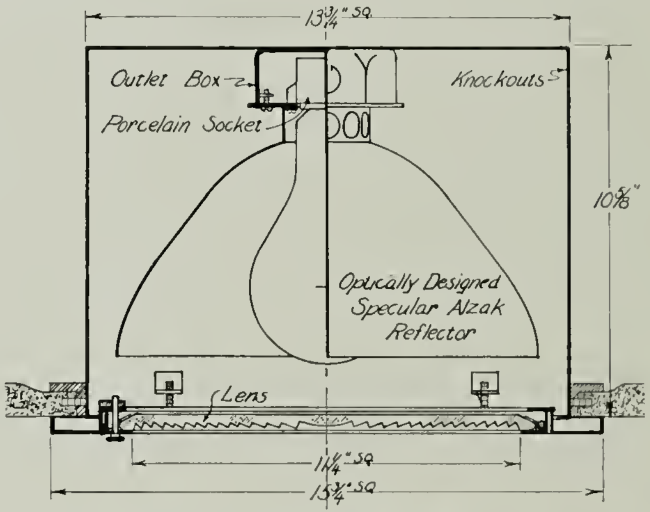



CANDLEPOWER DISTRIBUTION CURVE Nº550
200 WATT MAZDA "C" I.F. LAMP
400
800
1200
1600
2000
2400
2800
60°
45°
30°
15°
0°

CANDLEPOWER DISTRIBUTION CURVE UNIT No. 550:

This candlepower distribution curve was made with a One-light unit using a 200 Watt I. F. Lamp. To arrive at candlepower values for a 300 Watt Medium Base Lamp multiply by 1.62. Illumination values of the Two-light and Four-light units are respectively twice and four times that value derived from the One-light unit. The distribution of light is concentrating. The spacing of the units should not exceed 0.9 times the mounting height above the working plane. This type of unit is for general illumination in high ceiling areas or locations where Accent Lighting is desired.

SPECIFICATIONS: The cross-section illustrates the typical construction of the Recessed Units with 12" AMCO Lenses. The deep reflector is designed to optically compliment and function with the lens to produce a highly efficient unit. This reflector is made of 18 gauge Aluminum and finished specular Alzak. The lamps operate in a vertical position. All units in this line are constructed throughout of .05 steel. One-light boxes and face trim are one-piece stampings. All boxes are treated inside and outside with a base coat of Red Oxide Primer to prevent corrosion. The interior of the box is aluminized. Adequate knockouts are provided. Units are practically dust-tight. All units approved by Underwriters' Laboratories, Inc. Inside Frosted Lamps are recommended.



DATA

Cat. No.	Distribution Characteristic	Lens Size	★ Max. Watts	DIMENSIONS Face Plate	Insert Box Size
450	Widespread	12"	300	15¾"x15¾"	13¾"x13¾"x10⅝"
450C	Coloriser Widespread	12"	300	15¾"x15¾"	13¾"x13¾"x10⅝"
550	Concentrating	12"	300	15¾"x15¾"	13¾"x13¾"x10⅝"
550C	Coloriser Concentrating	12"	300	15¾"x15¾"	13¾"x13¾"x10⅝"

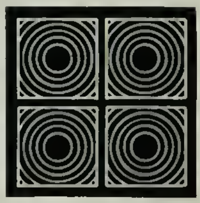
One Lamp—Position Vertical. Hinged Door.

Cat. No.	Distribution Characteristic	Lens Size	★ Max. Watts	DIMENSIONS Face Plate	Insert Box Size
451	Widespread	12"	600	15½"x27½"	13⅞"x25¾"x13"
451C	Coloriser Widespread	12"	600	15½"x27½"	13⅞"x25¾"x13"
551	Concentrating	12"	600	15½"x27½"	13⅞"x25¾"x13"
551C	Coloriser Concentrating	12"	600	15½"x27½"	13⅞"x25¾"x13"

Two Lamps Position Vertical. Lens Plates Slip in from Bottom.

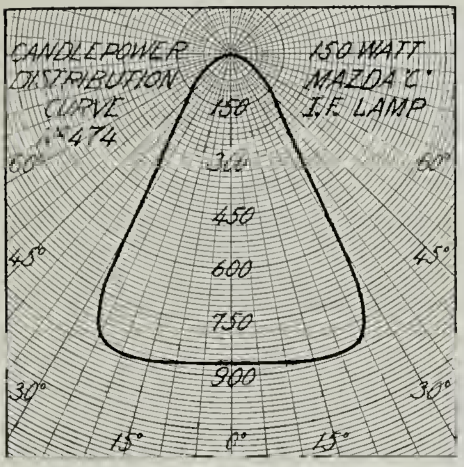
Cat. No.	Distribution Characteristic	Lens Size	★ Max. Watts	DIMENSIONS Face Plate	Insert Box Size
454	Widespread	12"	1200	28⅛"x28⅛"	26½"x26½"x13"
454C	Coloriser Widespread	12"	1200	28⅛"x28⅛"	26½"x26½"x13"
554	Concentrating	12"	1200	28⅛"x28⅛"	26½"x26½"x13"
554C	Coloriser Concentrating	12"	1200	28⅛"x28⅛"	26½"x26½"x13"

Four Lamp—Position Vertical. Lens Plates Slip in from Bottom.



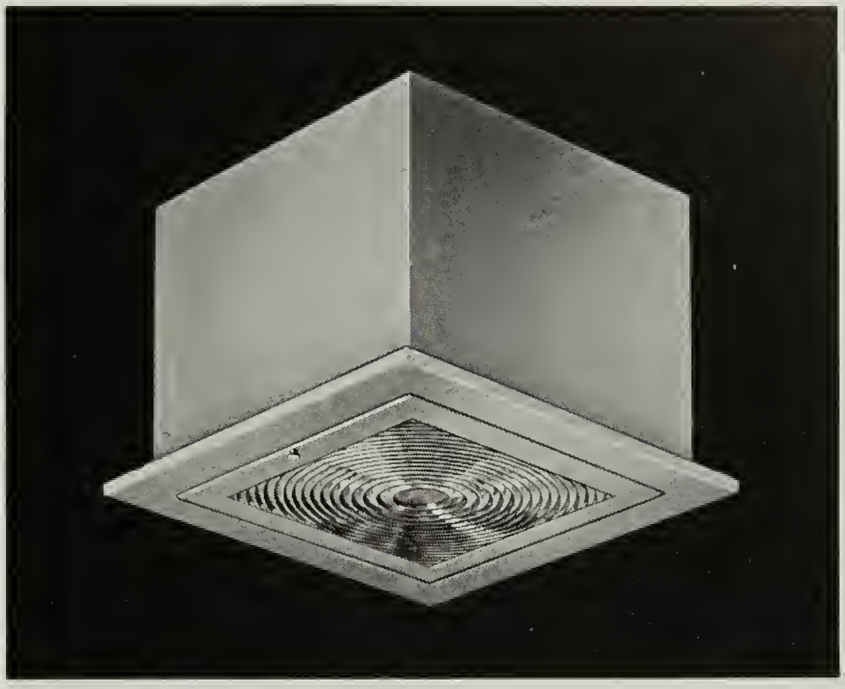
Standard Finish: Satin Aluminum. **Coloriser Lens:** Ivory. **Wire Guard:** See Page 29. ★300 Watt Medium Base.

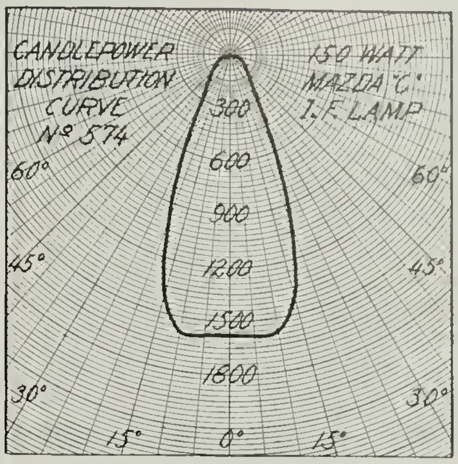
RECESSED UNITS—8" AMCO LENSES



CANDLEPOWER DISTRIBUTION CURVE UNIT No. 474:

This candlepower distribution curve was made with a One-light unit using a 150 Watt I. F. Lamp. The distribution of light is extremely wide. The spacing of the units should not exceed one and one quarter times the mounting height above the working plane. This type of unit is for general illumination.

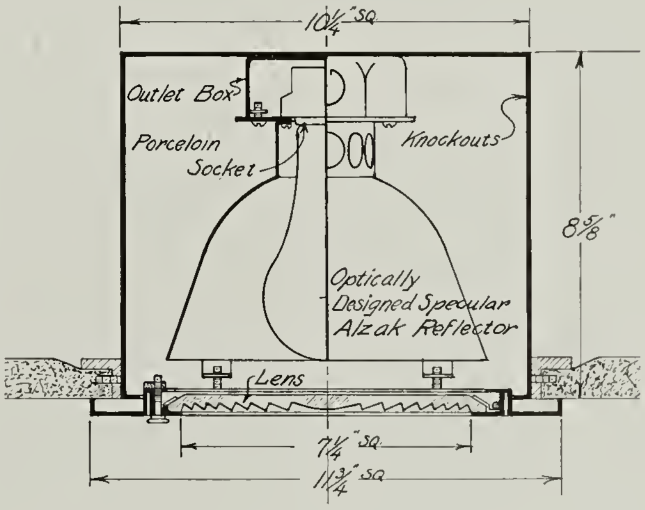



CANDLEPOWER DISTRIBUTION CURVE № 574
150 WATT MAZDA "C" I.F. LAMP
300
600
900
1200
1500
1800
60°
45°
30°
15°
0°

CANDLEPOWER DISTRIBUTION CURVE UNIT No. 574:

This candlepower distribution curve was made with a One-light unit using a 150 Watt I. F. Lamp. The distribution of light is concentrating. The spacing of the units should not exceed 0.9 times the mounting height above the working plane. This type of unit is for general illumination in high ceiling areas or locations where Accent Lighting is desired.

SPECIFICATIONS: The cross-section illustrates the typical construction of the Recessed Unit with 8" AMCO Lens. The deep reflector is designed to optically compliment and function with the lens to produce a highly efficient unit. This reflector is made of 18 gauge Aluminum and finished specular Alzak. The lamp operates in a vertical position. This unit is constructed of .037 steel—face trim .05 steel. The box and the face trim are one-piece stampings. The box is treated inside and outside with a base coat of Red Oxide Primer to prevent corrosion. The interior of the box is aluminized. Adequate knockouts are provided. The unit is practically dust-tight. Approved by Underwriters' Laboratories, Inc. Inside Frosted Lamps are recommended.



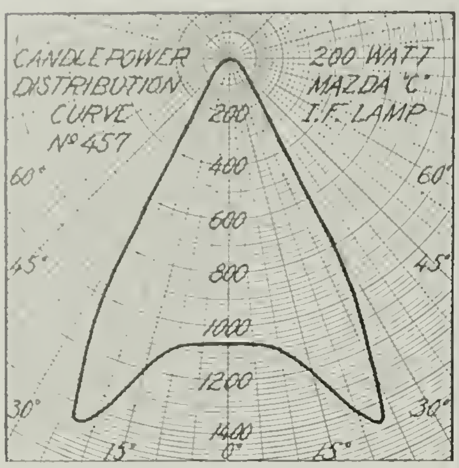
DATA

				DIMENSIONS	
Cat. No.	Distribution Characteristic	Lens Size	Max. Watts	Face Plate	Insert Box Size
474	Widespread	8"	150	11¾"x11¾"	10¼"x10¼"x8⅝"
474C	Coloriser Widespread	8"	150	11¾"x11¾"	10¼"x10¼"x8⅝"
574	Concentrating	8"	150	11¾"x11¾"	10¼"x10¼"x8⅝"
574C	Coloriser Concentrating	8"	150	11¾"x11¾"	10¼"x10¼"x8⅝"

One Lamp—Position Vertical. Hinged Door.

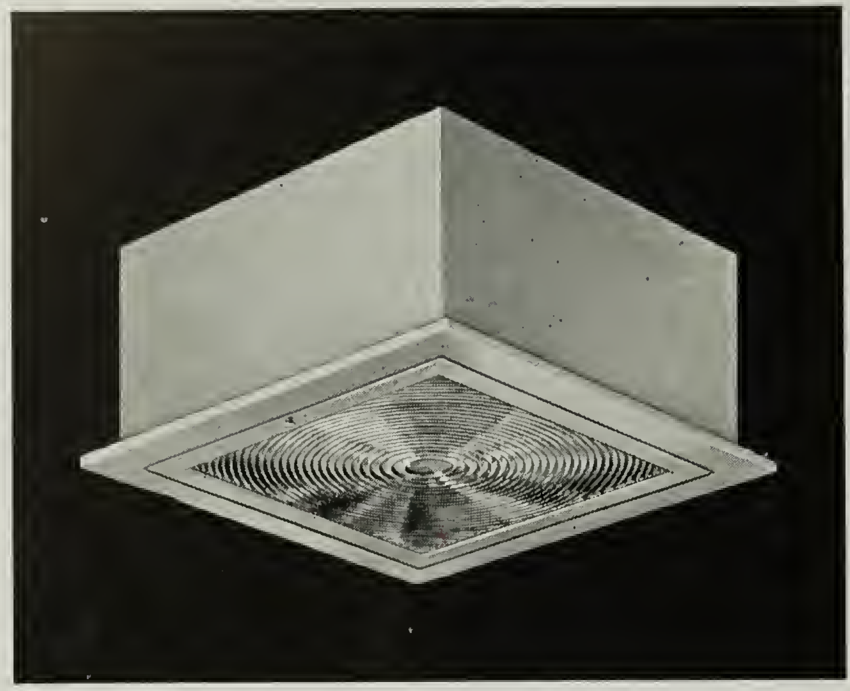
Standard Finish: Satin Aluminum. **Coloriser Lens:** Ivory. **Wire Guards:** See Page 29.

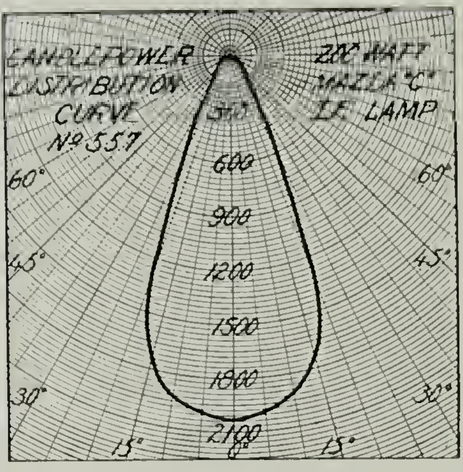
SHALLOW RECESSED UNITS—12" AMCO LENSES



CANDLEPOWER DISTRIBUTION CURVE UNIT No. 457:

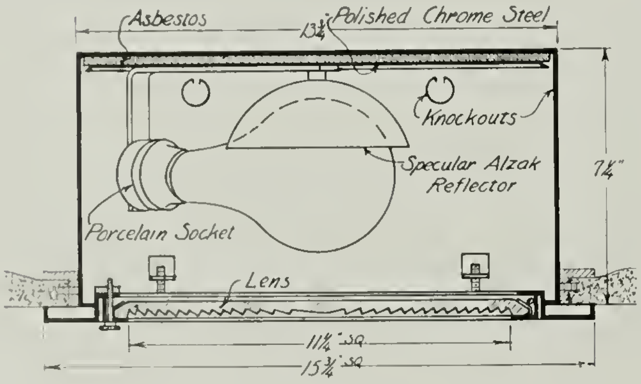
This candlepower distribution curve was made with a 200 Watt I. F. Lamp. To arrive at candlepower values for a 300 Watt Medium Base Lamp multiply by 1.62. The distribution of light is extremely wide. The spacing of the units should not exceed one and one quarter times the mounting height above the working plane. This unit is for general illumination.




CANDLEPOWER DISTRIBUTION CURVE Nº 557
200 WATT MAZDA "C" I.F. LAMP
300
600
900
1200
1500
1800
2100
60°
45°
30°
15°
0°

CANDLEPOWER DISTRIBUTION CURVE UNIT No. 557:

This candlepower distribution curve was made with a 200 Watt I. F. Lamp. To arrive at candlepower values for a 300 Watt Medium Base Lamp multiply by 1.62. The distribution of light is concentrating. The spacing of the units should not exceed 0.9 times the mounting height above the working plane. This unit is for general illumination in high ceiling areas or locations where Accent Lighting is desired.



SPECIFICATIONS: The cross-section illustrates the typical construction of the Shallow Recessed Unit with 12" AMCO Lens. The lamp operates in a horizontal position. The spherical reflector is made of 20 gauge Aluminum and finished specular Alzak. The box and the face trim are one-piece stampings. The box is constructed of .037 steel—face trim .05 steel. It is treated inside and outside with a base coat of Red Oxide Primer to prevent corrosion. The interior of the box is aluminized. A one-quarter inch thickness of porous asbestos is placed in the inside top of the box and held in position with a polished chrome steel sheet. Adequate knockouts are provided. The unit is practically dust-tight. Approved by Underwriters' Laboratories, Inc. Inside Frosted Lamps are recommended.

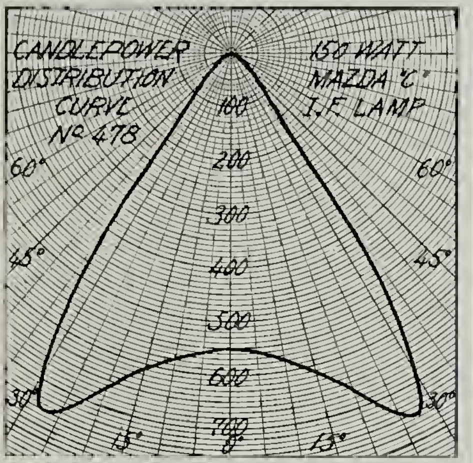
DATA

				DIMENSIONS	
Cat. No.	Distribution Characteristic	Lens Size	★ Max. Watts	Face Plate	Insert Box Size
457	Widespread	12"	300	15¾"x15¾"	13¾"x13¾"x7¼"
457C	Coloriser Widespread	12"	300	15¾"x15¾"	13¾"x13¾"x7¼"
557	Concentrating	12"	300	15¾"x15¾"	13¾"x13¾"x7¼"
557C	Coloriser Concentrating	12"	300	15¾"x15¾"	13¾"x13¾"x7¼"

One Lamp—Position Horizontal. Hinged Door.

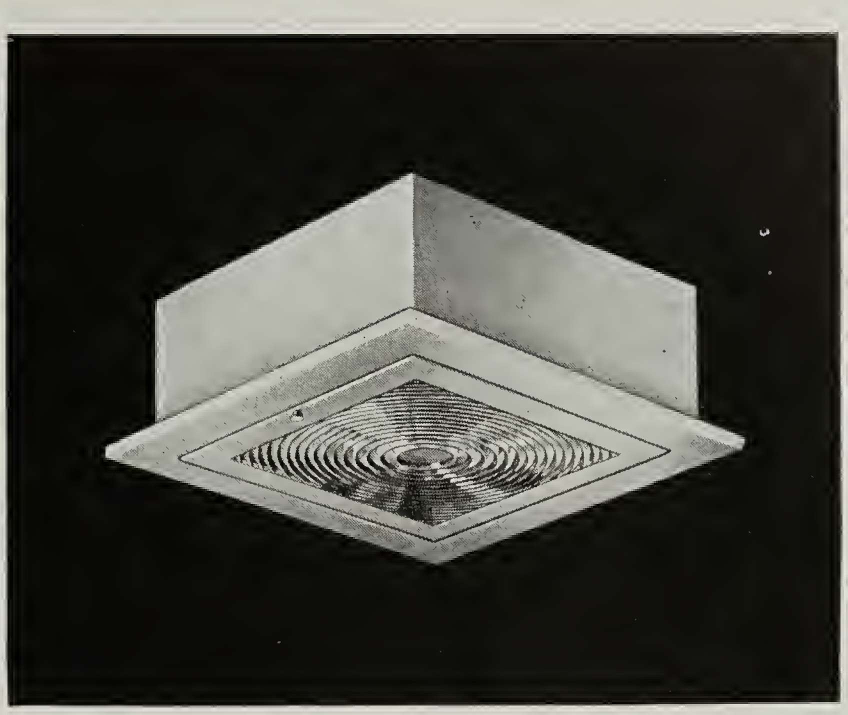
Standard Finish: Satin Aluminum. **Coloriser Lens:** Ivory. **Wire Guard:** See Page 29. ★ 300 Watt Medium Base.

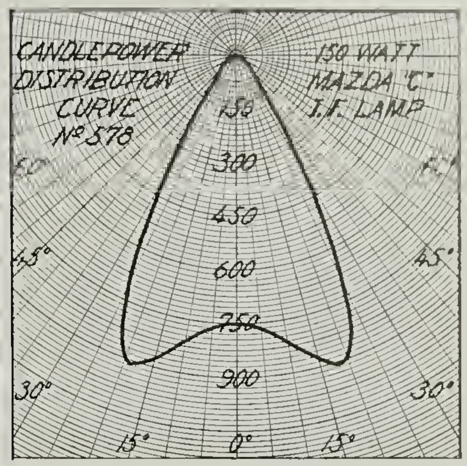
SHALLOW RECESSED UNITS—8" AMCO LENSES



CANDLEPOWER DISTRIBUTION CURVE UNIT No. 478:

This candlepower distribution curve was made with a 150 Watt I. F. Lamp. The distribution of light is extremely wide. The spacing of the units should not exceed one and one quarter times the mounting height above the working plane. This type of unit is for general illumination.

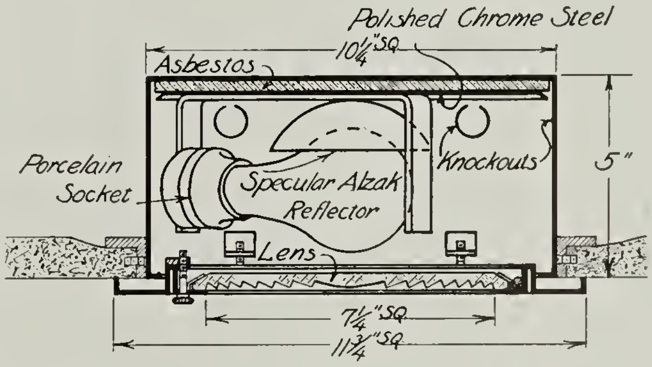



CANDLEPOWER DISTRIBUTION CURVE Nº 578
150 WATT MAZDA "C" I.F. LAMP
150
300
450
600
750
900
60°
45°
30°
15°
0°

CANDLEPOWER DISTRIBUTION CURVE UNIT No. 578:

This candlepower distribution curve was made with a 150 Watt I. F. Lamp. The distribution of light is concentrating. The spacing of the units should not exceed 0.9 times the mounting height above the working plane. This unit is for general illumination in high ceiling areas or locations where Accent Lighting is desired.

SPECIFICATIONS: The cross-section illustrates the typical construction of the Shallow Recessed Unit with 8" AMCO Lens. The lamp operates in a horizontal position. The spherical reflector is made of 20 gauge Aluminum and finished specular Alzak. The box and the face trim are one-piece stampings. The box is constructed of .037 steel—face trim .05 steel. It is treated inside and outside with a base coat of Red Oxide Primer to prevent corrosion. The interior of the box is aluminized. A one-quarter inch thickness of porous asbestos is placed in the inside top of the box and held in position with a polished chrome steel sheet. Adequate knockouts are provided. The unit is practically dust-tight. Approved by Underwriters' Laboratories, Inc. Inside Frosted Lamps are recommended.



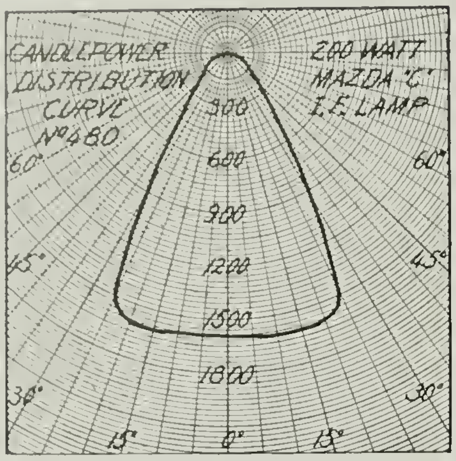
DATA

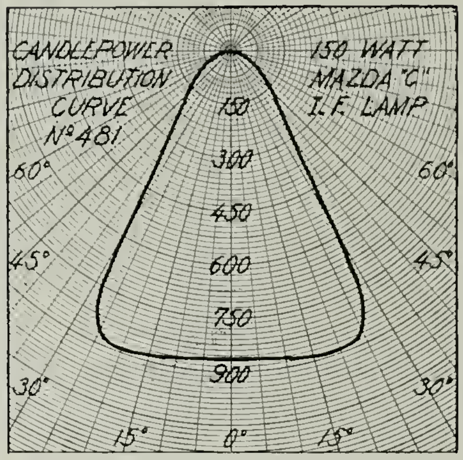
Cat. No.	Distribution Characteristic	Lens Size	Max. Watts	DIMENSIONS Face Plate	 Insert Box Size
478	Widespread	8"	150	11¾"x11¾"	10¼"x10¼"x5"
478C	ColoriserWidespread	8"	150	11¾"x11¾"	10¼"x10¼"x5"
578	Concentrating	8"	150	11¾"x11¾"	10¼"x10¼"x5"
578C	Coloriser Concentrating	8"	150	11¾"x11¾"	10¼"x10¼"x5"

One Lamp—Position Horizontal. Hinged Door.

Standard Finish: Satin Aluminum. **Coloriser Lens:** Ivory. **Wire Guards:** See Page 29.

ROUND RECESSED UNITS—AMCO LENSES




CANDLEPOWER DISTRIBUTION CURVE Nº481
150 WATT MAZDA "C" I. F. LAMP
150
300
450
600
750
900
60°
60°
45°
45°
30°
30°
15°
0°
15°

UNIT No. 480:

CANDLEPOWER DISTRIBUTION CURRVE

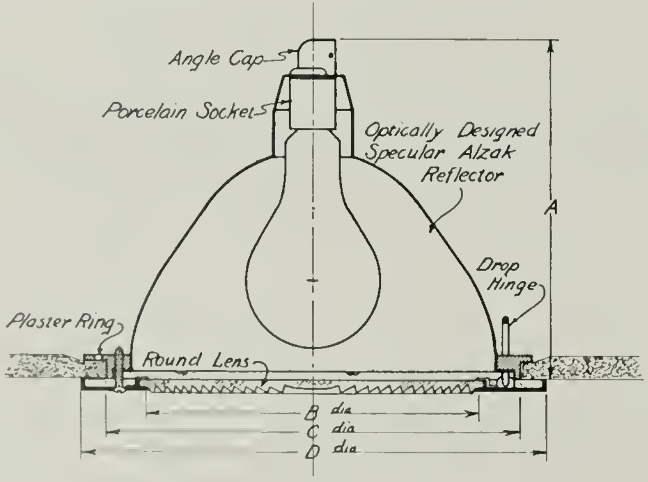
This candlepower distribution curve was made with a 200 Watt I. F. Lamp. To arrive at candlepower values for a 300 Watt Medium Base Lamp multiply by 1.62. The distribution of light is extremely wide. The spacing of the units should not exceed one and one quarter times the mounting height above the working plane. This unit is for general illumination.

UNIT No. 481:

CANDLEPOWER DISTRIBUTION CURVE

This candlepower distribution curve was made with a 150 Watt I. F. Lamp. The distribution of light is extremely wide. The spacing of the units should not exceed one and one quarter times the mounting height above the working plane. This unit is for general illumination.

UNIT Nº	LAMP SIZE	A	B	C	D
480	300 watt	11"	10⅞"	13½"	15⅛"
481	150 watt	9¼"	8"	10½"	12¼"



SPECIFICATIONS: These Round Recessed Units are of Single Unit construction as the reflector functions as the housing. This is made of 18 gauge Aluminum finished specular Alzak. The cast plaster ring holds the reflector and the lens frame together as a unit. The lens frame is drop-hinged. The lamp operates in a vertical position. The unit is practically dust-tight. Approved by Underwriters' Laboratories, Inc. Inside Frosted Lamps are recommended.

DATA

Cat. No.	Distribution Characteristic	Lens Size	★ Max. Watts	DIMENSIONS Face Plate	Insert Box Size
480	Widespread	11¼" Dia.	300	15⅛" Dia.	13½" Dia. x 11"
480C	Coloriser Widespread	11¼" Dia.	300	15⅛" Dia.	13½" Dia. x 11"

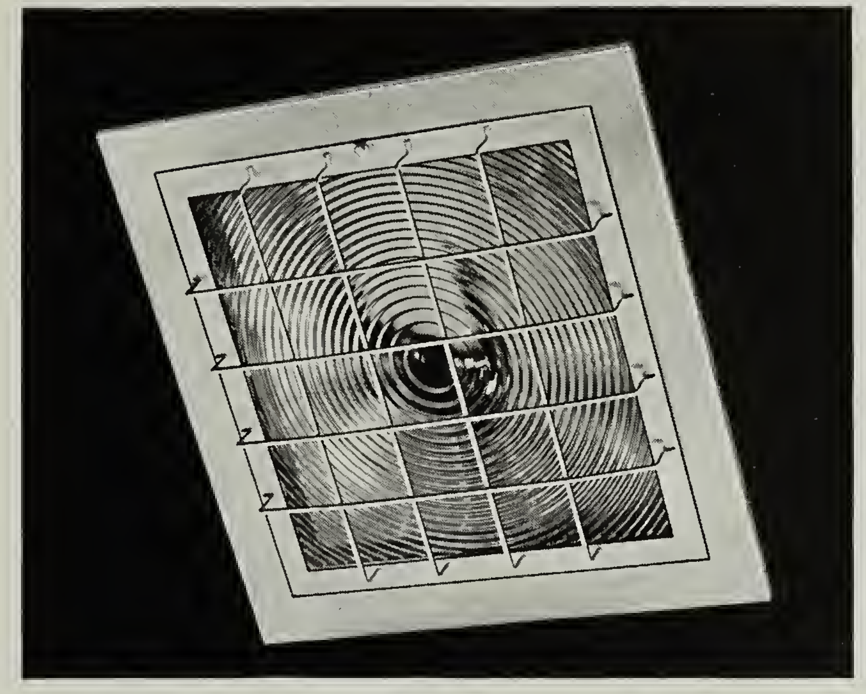
One Lamp—Position Vertical. Drop-Hinged Front.

Cat. No.	Distribution Characteristic	Lens Size	Max. Watts	DIMENSIONS Face Plate	Insert Box Size
481	Widespread	8⅜" Dia.	150	12¼" Dia.	10½" Dia. x 9¼"
481C	Coloriser Widespread	8⅜" Dia.	150	12¼" Dia.	10½" Dia. x 9¼"

One Lamp—Position Vertical. Drop-Hinged Front.

Standard Finish: Satin Aluminum. **Coloriser Lens:** Ivory. ★ 300 Watt Medium Base.

WIRE GUARDS FOR SQUARE RECESSED UNITS



Listed for each unit in price list.

To protect the lens in hazardous locations a wire guard is available for all square recessed units of The Art Metal System of Direct Illumination.

The illustration shows the guard for Single light units—fastened directly to the hinged door of the box. Two and four light assemblies are hinged as a unit — wire guards in this case swing down from the front of the lens trim for easy access.

• • •

ART METAL OPTICAL SYSTEM ADDENDUM

- Units for black board lighting, art galleries, surgeries and special applications such as psychiatric cubicles, wards, jail cells and hazardous locations are specially designed and constructed to meet the requisites of each particular job. These are not cataloged—blue prints and specifications will be furnished on request.

Multiple units, exposed or recessed, 3, 5 and 6 lights articulated as well as Semi-exposed units, not cataloged, amplify this line.

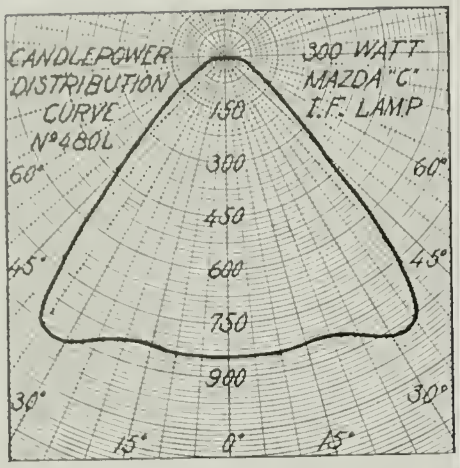
Units utilizing 6½″ square AMCO lenses may also be had in any of the standard types of units and distributions, cataloged in larger lens sizes.

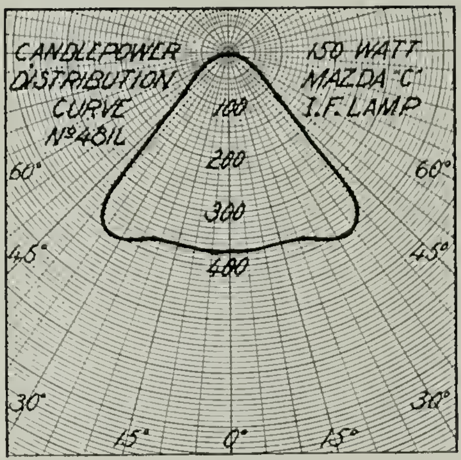
A 6⅝″ diameter round AMCO lens supplements the line in a recessed type unit for utilitarian purposes.

ENGINEERING SERVICE

Due to the technical character of the Art Metal Optical System of Direct Illumination, Architects, Engineers and Specification writers will find our Illuminating Engineering Service helpful in working out lighting problems of a special or unusual nature.

ROUND RECESSED UNITS—METAL LOUVRES




CANDLEPOWER DISTRIBUTION CURVE Nº481L
150 WATT MAZDA "C" I.F. LAMP
100
200
300
400
60°
60°
45°
45°
30°
30°
15°
0°
15°

UNIT No. 480L:

CANDLEPOWER DISTRIBUTION CURVE

This candlepower distribution curve was made with a 300 Watt Medium Base I. F. Lamp. The metal louvres are so designed that the cut-off is 45 degrees.

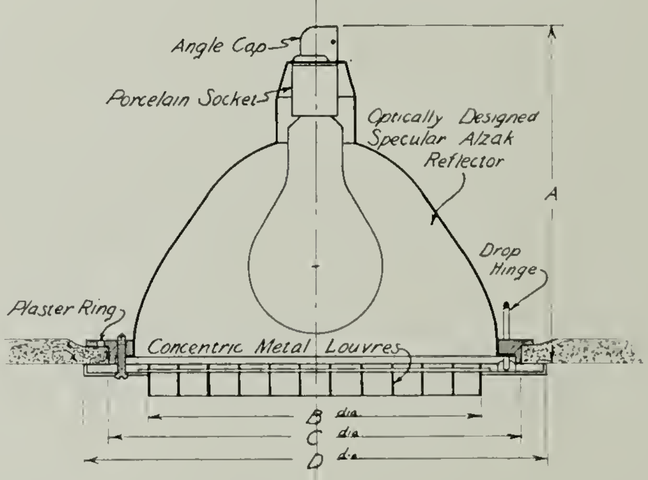
UNIT No. 481L:

CANDLEPOWER DISTRIBUTION CURVE

This candlepower distribution curve was made with a 150 Watt I. F. Lamp. The metal louvres are so designed that the cut-off is 45 degrees.

SPECIFICATIONS: These units are of Single Unit construction as the reflector functions as the housing. This is made of 18 gauge Aluminum finished specular Alzak. The cast plaster ring holds the reflector and the louvre frame together as a unit. The louvre frame is drop-hinged. The lamp operates in a vertical position. Approved by Underwriters' Laboratories, Inc. Inside Frosted Lamps are recommended.

UNIT Nº	LAMP SIZE	A	B	C	D
480L	300 watt	11"	10⅞"	13½"	15⅛"
481L	150 watt	9¼"	8"	10½"	12¼"



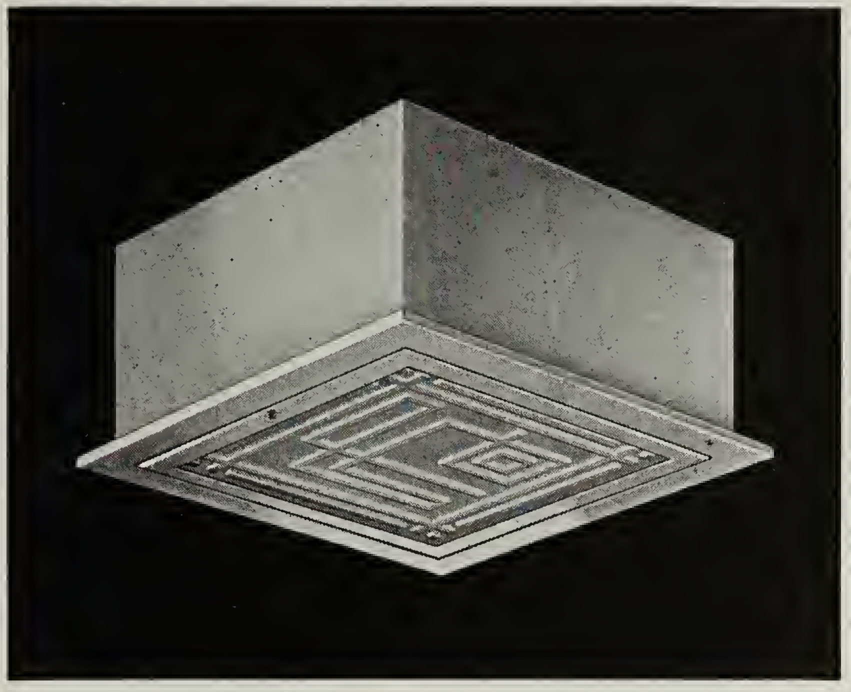
DATA

Cat. No.	Distribution Characteristic	Lens Size	Max. Watts	DIMENSIONS Face Plate	 Insert Box Size
480L	Concentric Louvres	11¼" Dia.	★ 300	15⅛" Dia.	13½" Dia. x 11"
481L	Concentric Louvres	8⅜" Dia.	150	12¼" Dia.	10½" Dia. x 9¼"

One Lamp—Position Vertical. Drop-Hinged Front.

Standard Finish: Satin Aluminum. **Louvre:** Matt White. ★ 300 Watt Medium Base.

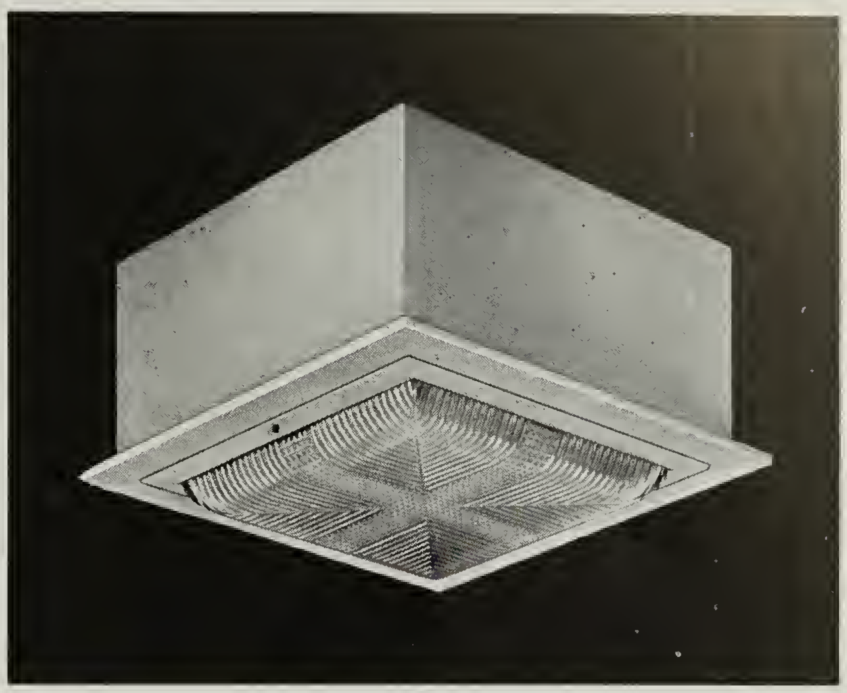
ARCHITECTURAL GLASS PLATE RECESSED AND EXPOSED TYPES



RECESSED TYPE

Cat. No.	Plate Size	Face Size	Insert Size	Watts
457F	12"	15¾"x15¾"	13¾"x13¾"x7¼"	★ 300

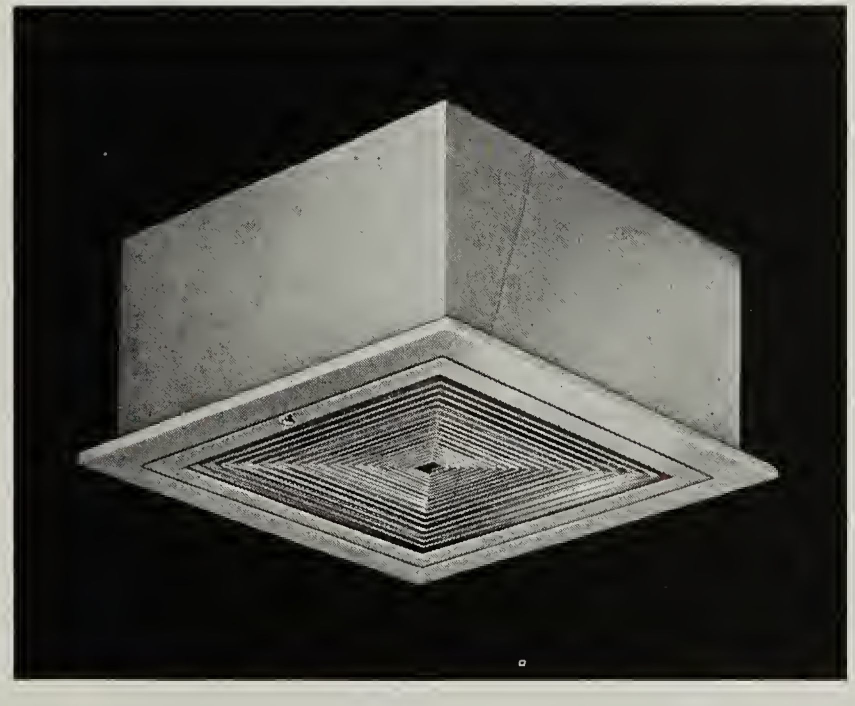
Standard Finish: Satin Aluminum.
Carved Glass Plate.
Hinged Bottom Door.



RECESSED TYPE

Cat. No.	Plate Size	Face Size	Insert Size	Watts
478E	8"	11¾"x11¾"	10¼"x10¼"x5"	150
457E	12"	15¾"x15¾"	13¾"x13¾"x7¼"	★ 300

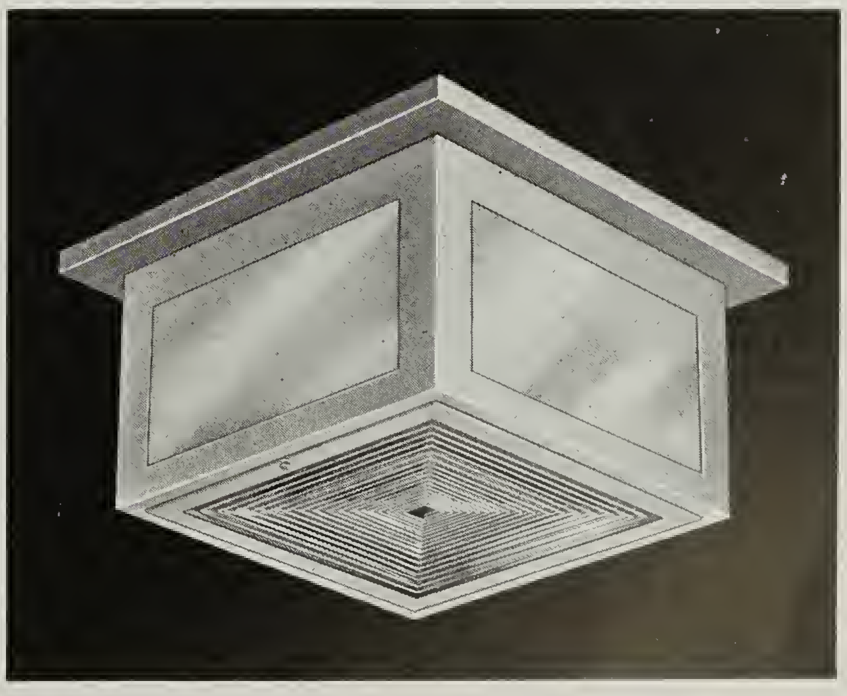
Standard Finish: Satin Aluminum.
Dished Glass Plate with Configuration.
Hinged Bottom Door.



RECESSED TYPE

Cat. No.	Plate Size	Face Size	Insert Size	Watts
678	8"	11¾"x11¾"	10¼"x10¼"x5"	150
657	12"	15¾"x15¾"	13¾"x13¾"x7¼"	★ 300

Standard Finish: Satin Aluminum.
Clear Glass Plate with Geometric Design.
Hinged Bottom Door.



EXPOSED TYPE

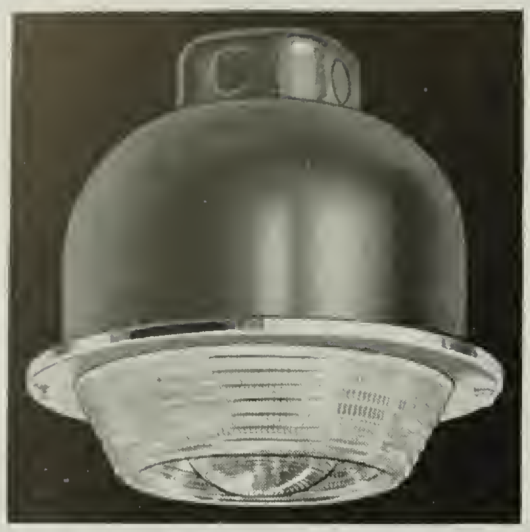
Cat. No.	Plate Size	Ceiling Size	Watts
676	8"	13¾"x13¾"x5½"	150
667	12"	17" x17" x9"	★ 300

Standard Finish: Satin Aluminum.
Clear Glass Plate with Geometric Design.
Side Panels: Flashed Opal.
Hinged Bottom Door.

★ 300 WATT MEDIUM BASE LAMPS.

ALL UNITS ON THIS PAGE APPROVED BY UNDERWRITERS LABORATORIES, INC.

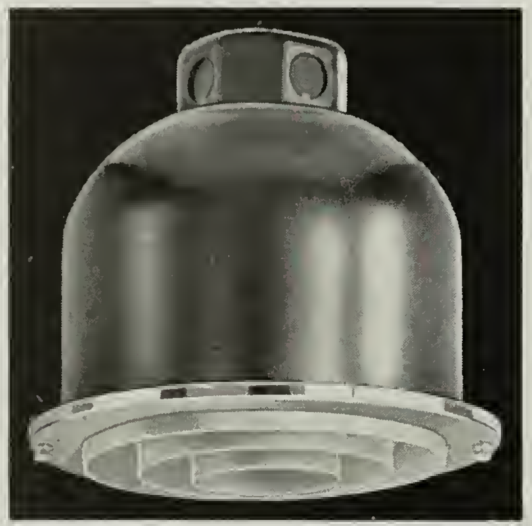
RECESSED TYPES



DROPPED GLASS TYPE

Cat. No.	Face Dia.	Insert Dia.	Insert Depth	Watts
2548	8¾″	7½″	5½″	100

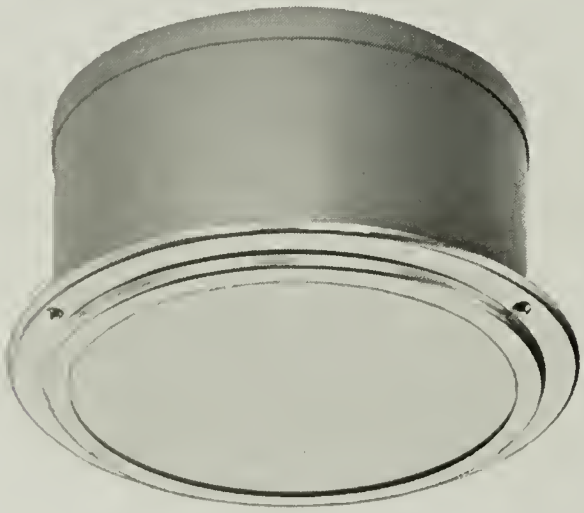
Finish: Face trim—Polished Chrome Tint.
Glass: Refracting crystal dish.
Insert Housing: Black.
Interior: Aluminized.
Parabolic Reflector: Polished Aluminum.
Furnished with 3¼″ outlet box attached.
Front screws on.



CONCENTRIC METAL LOUVRE TYPE

Cat. No.	Face Dia.	Insert Dia.	Insert Depth	Watts
1925L	8¾″	7½″	7½″	100

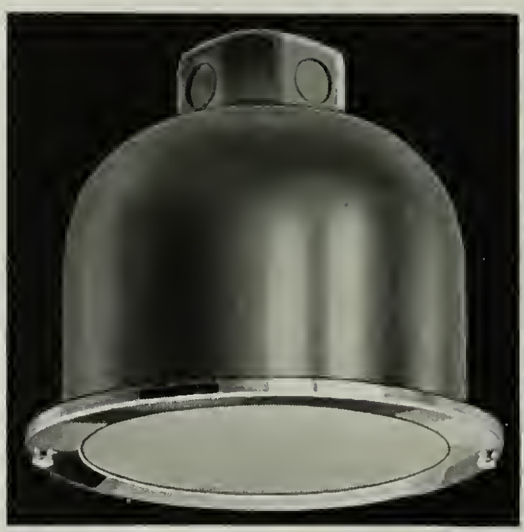
Metal Louvres.
Finish: Face trim—Polished Chrome Tint.
Louvres: Satin Aluminum.
Insert Housing: Black.
Interior: Aluminized.
Furnished with 3¼″ outlet box attached.
Front screws on.



ROUND INSERT UTILITY

Cat. No	Face Size	Insert Size	Insert Depth	Lts.
1502	11″ Dia.	9½″ Dia.	5″	2-60W

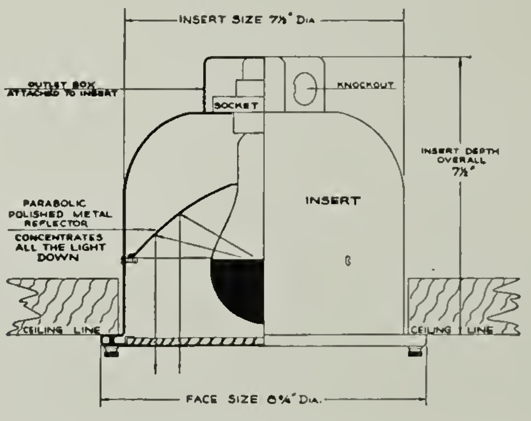
Finish: Face trim—Satin Nickel.
Glass: Luxlite plate.
Front screws on.



FLUSH GLASS TYPE

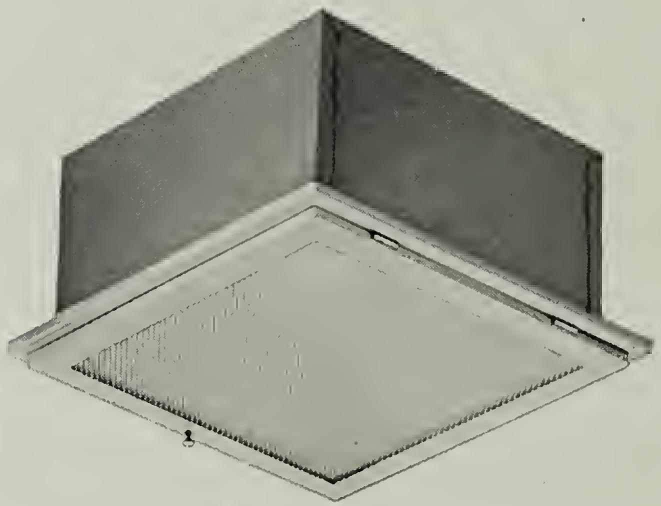
Cat. No.	Face Dia.	Insert Dia.	Insert Depth	Watts
1925	8¾″	7½″	7½′	100

Finish: Face trim—Polished Chrome Tint.
Glass: Luxlite Plate.
Insert Housing: Black.
Interior: Aluminized.
Parabolic Reflector: Polished Aluminum.
Furnished with 3¼″ outlet box attached.
Front screws on.



Quarter section showing construction of No. 1925 Glass bottom—with position of parabolic reflector in relation to silver bowl lamp for concentrating down-light.

ALL UNITS ON THIS PAGE APPROVED BY UNDERWRITERS LABORATORIES, INC.

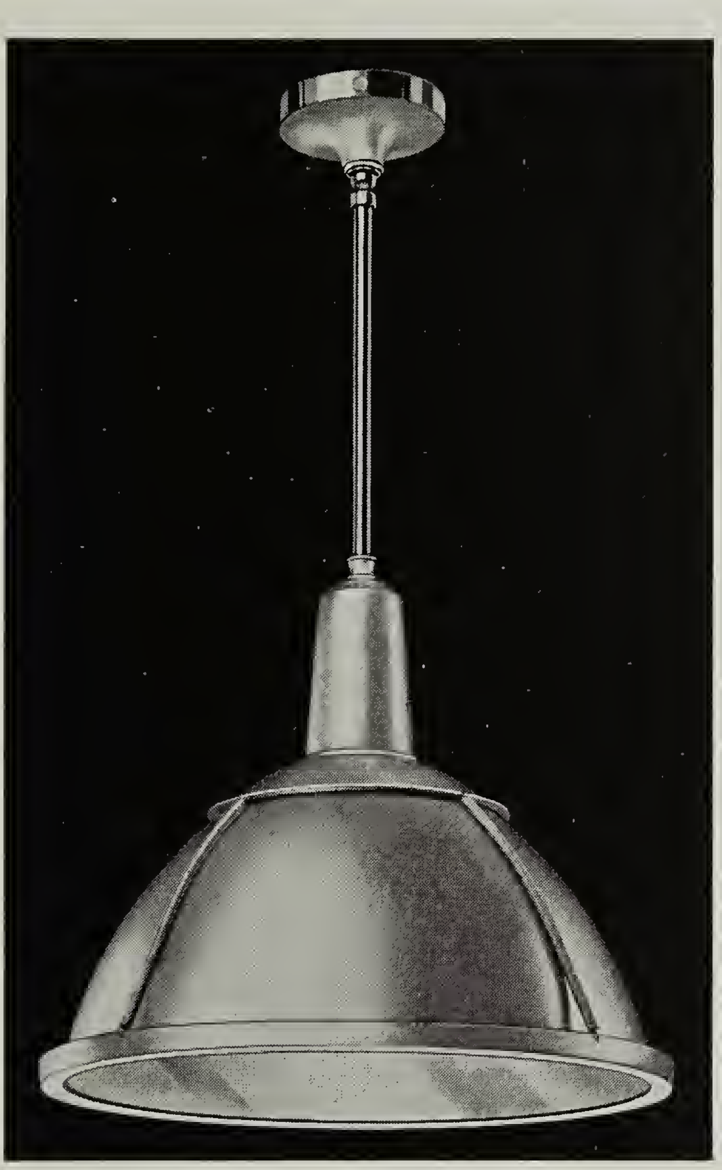


SQUARE INSERT UTILITY

Cat. No.	Face Size	Insert Size	Insert Depth	Lts.
1506	12¾″ Sq.	11¼″ Sq.	5½″	2-100W

Finish: Face trim—Satin Nickel.
Glass: Luxlite plate.
Hinged front.

HIGH-BAY LIGHTING UNITS

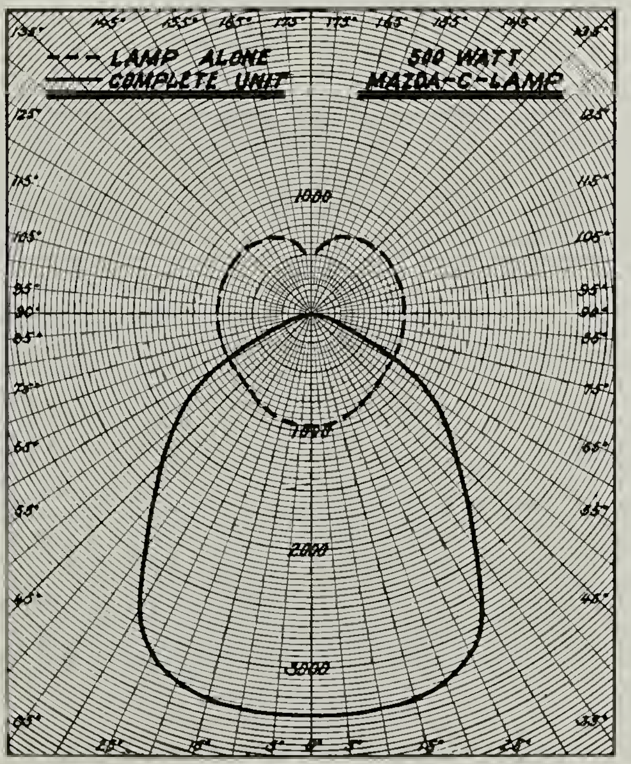


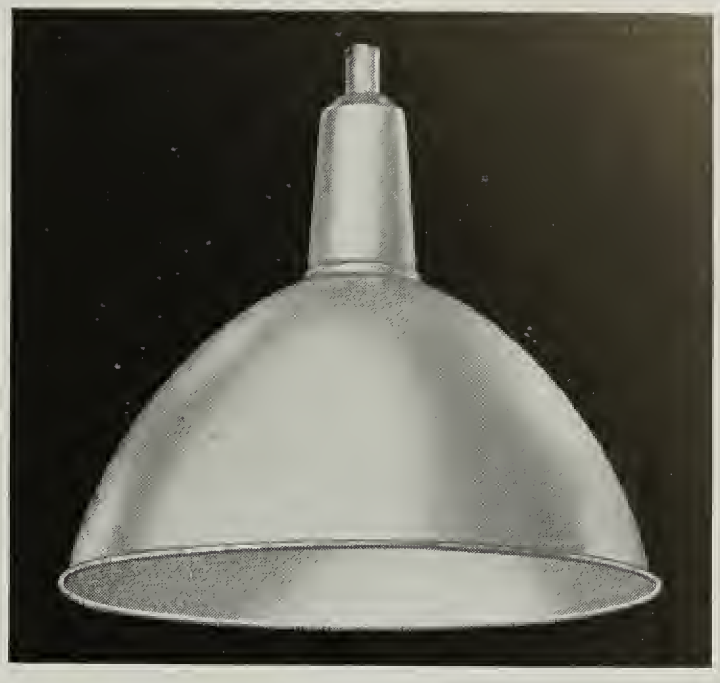
STEM PENDANT

Cat. No. with TUFLEX Glass Cover	Cat. No. Less Glass Cover	Reflector Dia.	Length O.A.	Watts
2549	**2552**	14″	36″	100-200
2550	**2553**	16″	36″	300-500
2551	**2554**	18″	36″	750-1000

Finish: Satin Aluminum.
Shown with glass cover plate in position.
Can be furnished for high intensity Mercury Vapor lamps.

CANDLEPOWER DISTRIBUTION CURVE
UNIT No. 2559

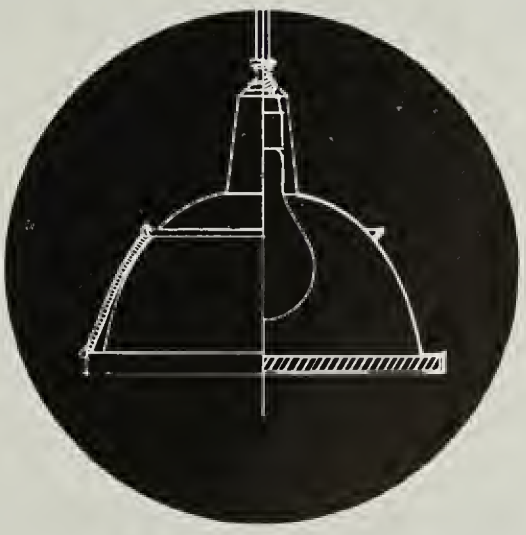




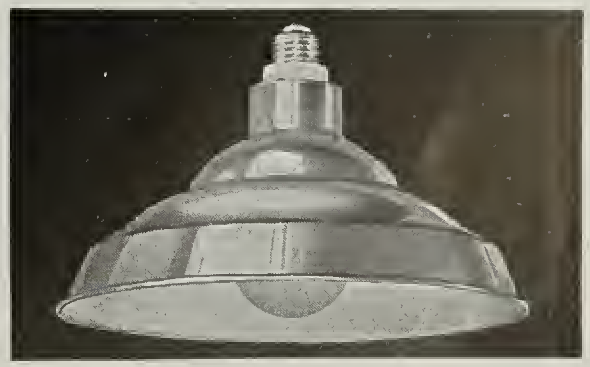
CLOSE COUPLED UNIT

Cat. No. with TUFLEX Glass Cover	Cat. No. Less Glass Cover	Reflector Dia.	Length O.A.	Watts
2555	**2558**	14″	12½″	100-200
2556	**2559**	16″	15″	300-500
2557	**2560**	18″	18″	750-1000

Finish: Satin Aluminum.
Shown without glass cover plate.
Furnished with ¾″ female outlet box connector.
Can be furnished for high intensity Mercury Vapor lamps.



Section showing lamp in relation to reflector on both types shown above. Dust proof cover plates are furnished with ¼″ Tuflex glass and gasket, held in position by an upper plate supporting four tension springs—removable for maintenance.



REFLECTOLITE
Bench or auxiliary unit

Cat. No.	Dia.	Length O.A.	Watts
511	10½″	6¾″	100

Finish: Green.
Reflecting Surface: White Enamel 88% R. F.
Screws in like a lamp.

THE PLASTICEIL

Semi-Indirect Plastic Bowl

Cat. No.	Dia.	Suspension	Length O.A.	Watts
2562	15¾"	12"	18"	200
2409	15¾"	30"	36"	200

Standard Finish: Silvertint.

Art Metal Plastic units are molded of PLASKON powder by the General Electric Company.

This plastic powder has been selected as the most efficient of all available molding powders for light transmission and color quality. Providing: PERMANENCE of color—SAFETY non-shatterable—15% lighter in weight than other translucent bowls—EFFICIENCY—upwards of 83%—MAINTENANCE—minimized—can be cleaned with a damp cloth—eliminating breakage and replacement.

PLASKETTE

Semi-Indirect Plastic Bowl

Cat. No.	Dia.	Length O.A.	Watts
1829	12"	10"	150

Finish: Silvertint.

THE PLASTICLITE

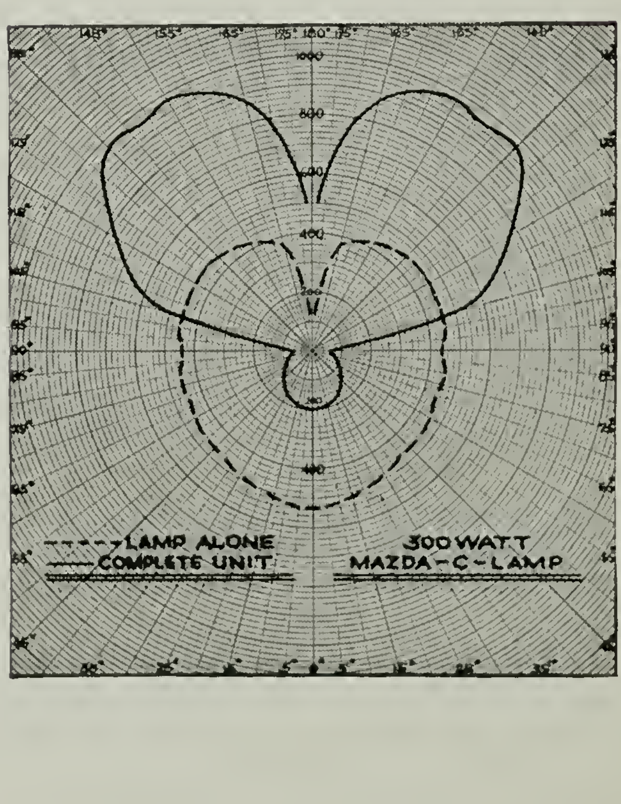
Semi-indirect plastic bowl.

***No. 1860**	18⅝" Dia.	30" Susp.	37" O. A.	300-500W
No. 2409	15¾" Dia.	30" Susp.	36" O. A.	200W

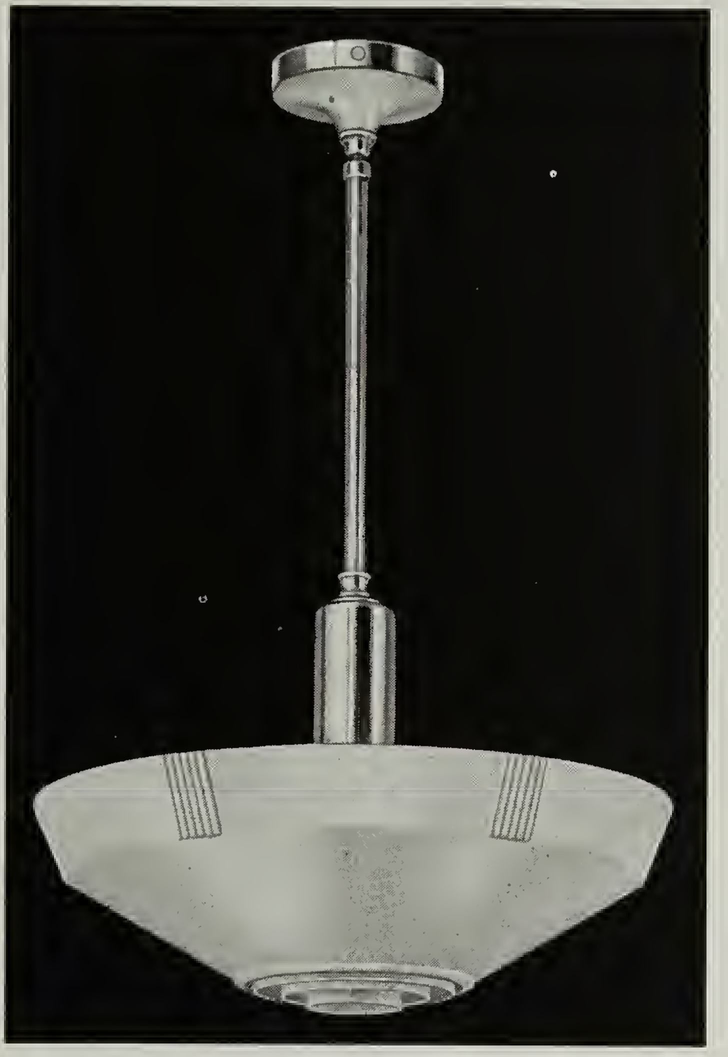
Standard Finish: Silvertint.

*Furnished with a non-absorbing light baffle.

The light distribution of the PLASTICLITE is illustrated by this characteristic curve. SURFACE BRIGHTNESS VALUES of the Plasticlite Bowls range from .8 to 1.98 candle power per sq. in. with a 300W lamp.



THE LOUVRPLASTIC



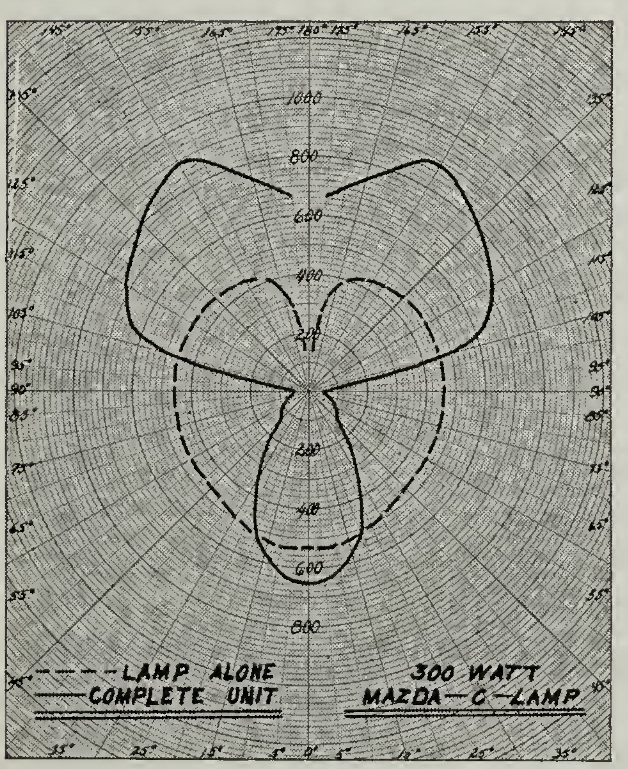
Direct-Indirect Plastic bowl with concentric metal louvre downlight control.

No. 1944 18⅝" Dia. 30" Susp. 36" O. A. 300-500W

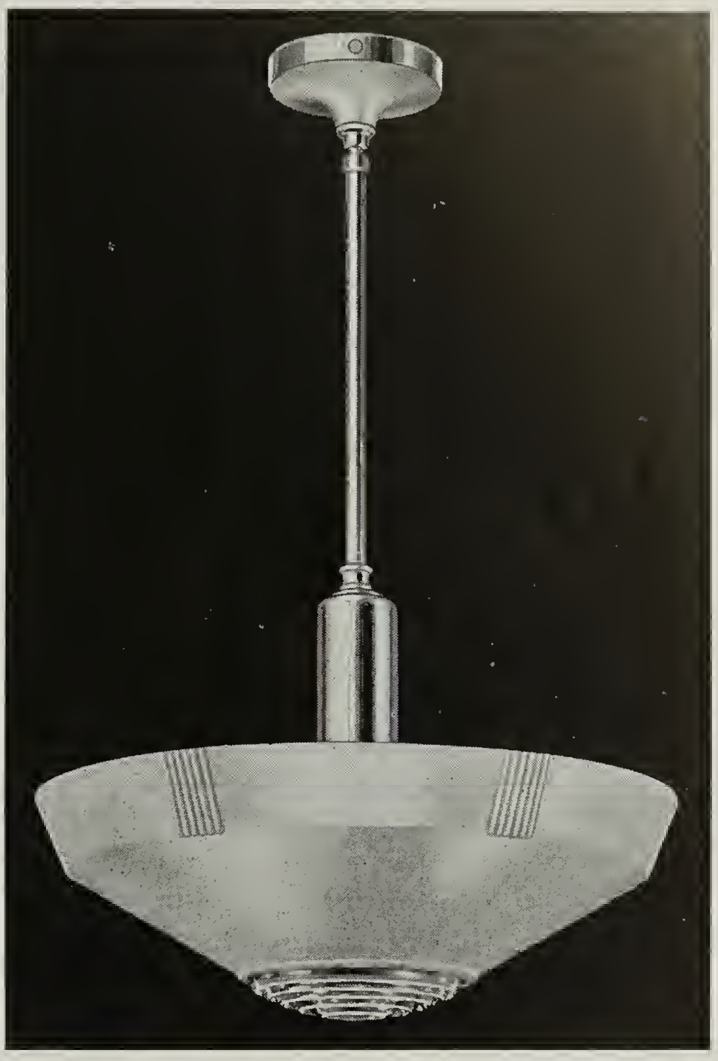
Standard Finish: Silvertint—Louvres White.

Furnished with a non-absorbing light baffle.

CANDLEPOWER DISTRIBUTION CURVE



THE LENSPLASTIC



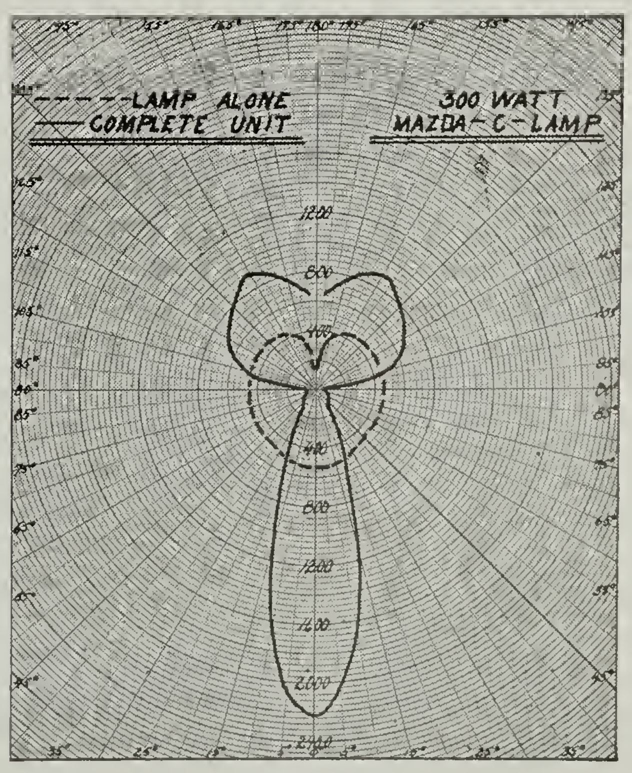
Direct-Indirect Plastic bowl with Art Metal "Widelite" glass lens downlight control.

No. 1943 18⅝" Dia. 30" Susp. 36" O. A. 300-500W

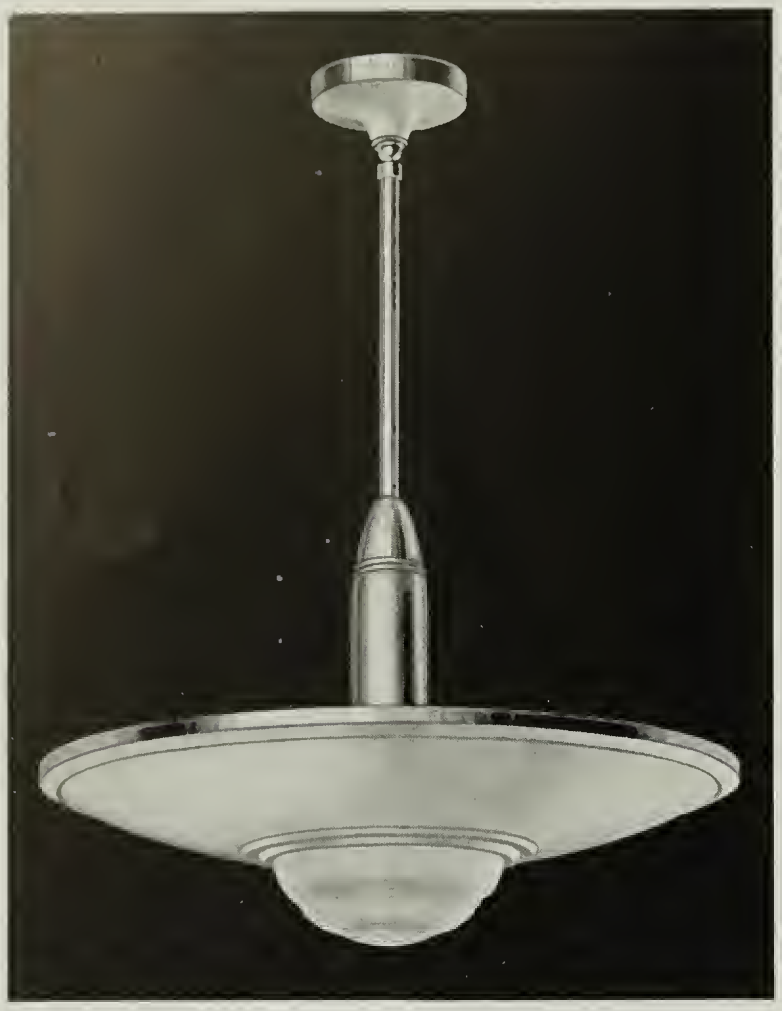
Standard Finish: Silvertint.

Furnished with a non-absorbing light baffle.

CANDLEPOWER DISTRIBUTION CURVE



THE AERIAL

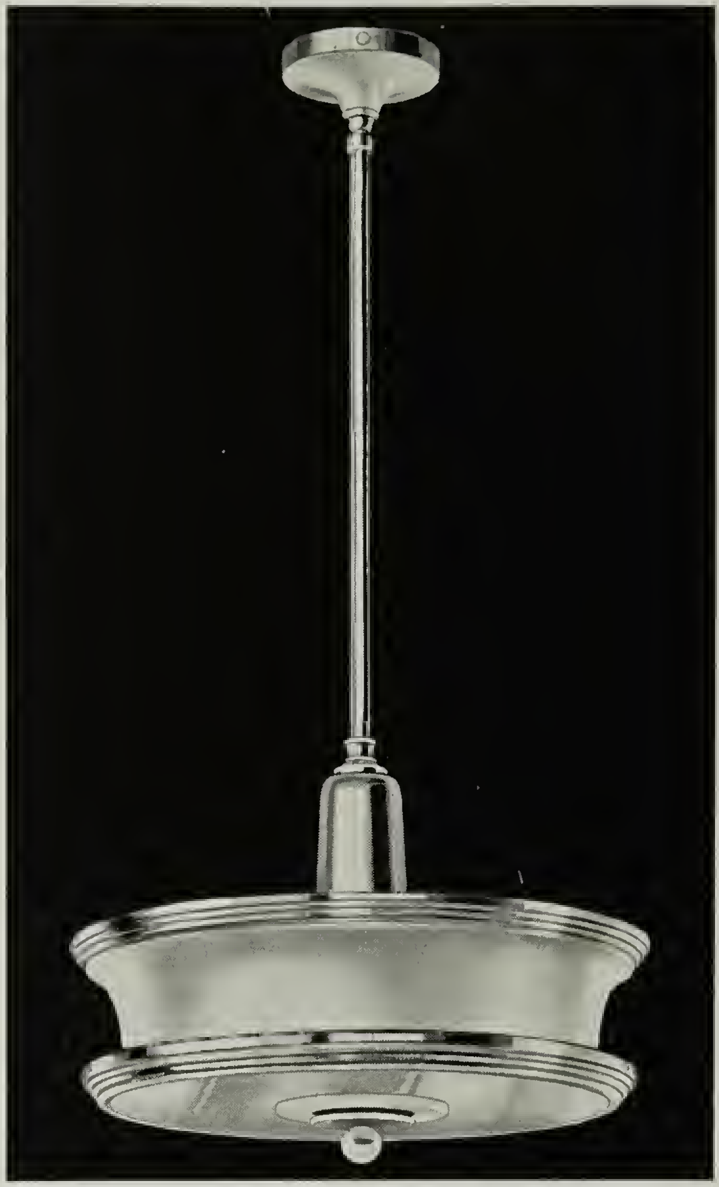


Semi-indirect with luminous Denax glass cup in bottom.

No. 1781S	18" Dia.	30" Susp.	35" O. A.	200-300W
No. 1812S	18" Dia.	30" Susp.	35" O. A.	300W
No. 1782S	22" Dia.	30" Susp.	36" O. A.	300-500W

Standard Finish: Silvertint.

THE EQUALIER

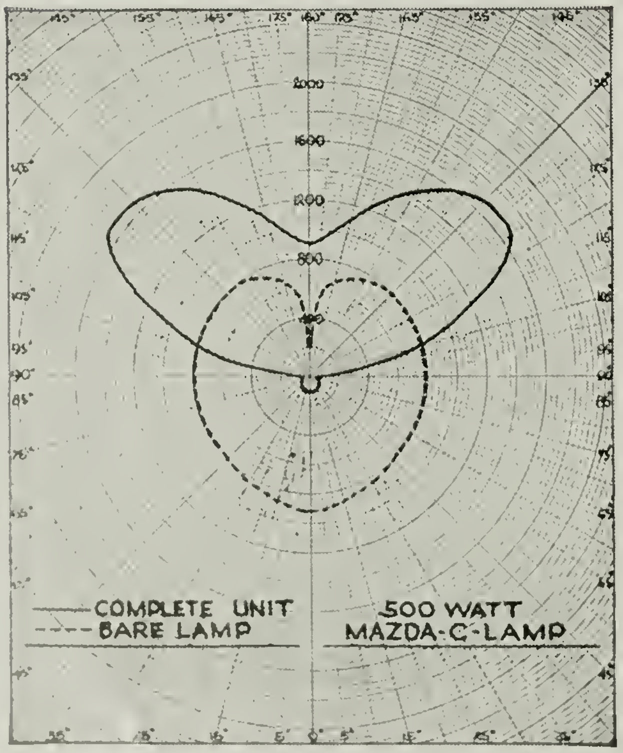


Semi-indirect luminous drum with a double thickness flashed opal bottom glass with a 5½" dia. louvred metal plate and crystal ball.

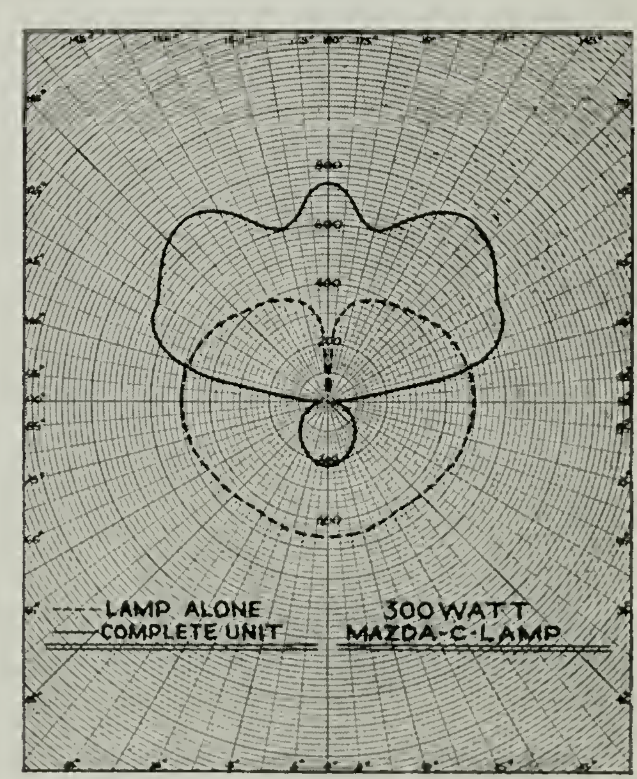
No. 1830S	18" Dia.	30" Susp.	36" O. A.	300W

Standard Finish: Silvertint.

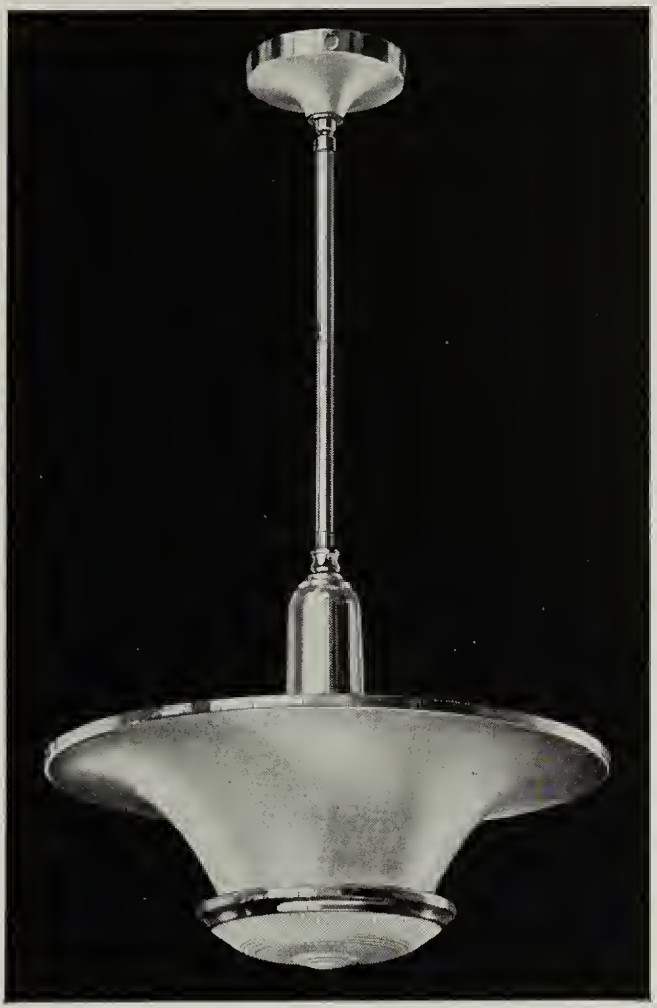
CANDLEPOWER DISTRIBUTION CURVE



CANDLEPOWER DISTRIBUTION CURVE



THE EQUALITE

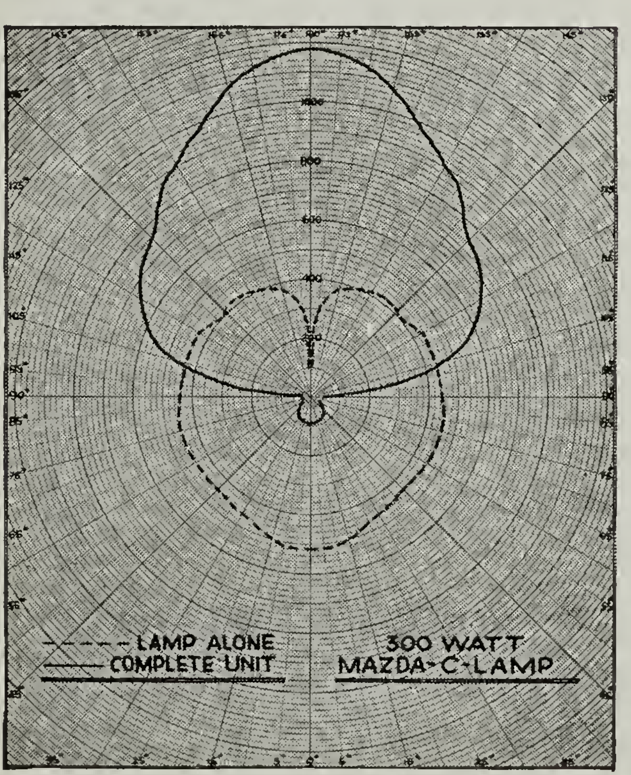


Semi-indirect with luminous bowl and white Monax glass bottom plate.

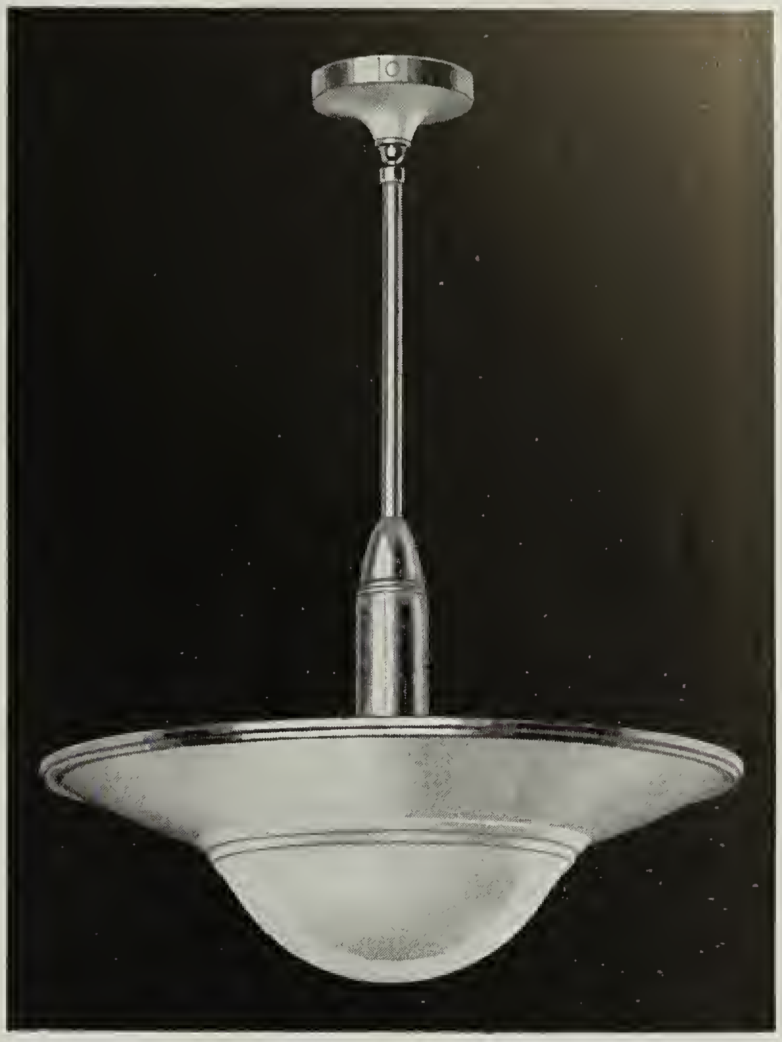
Swivel Stem Pend.	Chain Pend.	Dia.	Susp.	O. A.	Wattage
No. 1732S	**No. 1732**	18"	30"	38"	300-500W

Standard Finish: Silvertint.

CANDLEPOWER DISTRIBUTION CURVE



THE SUPERLUX

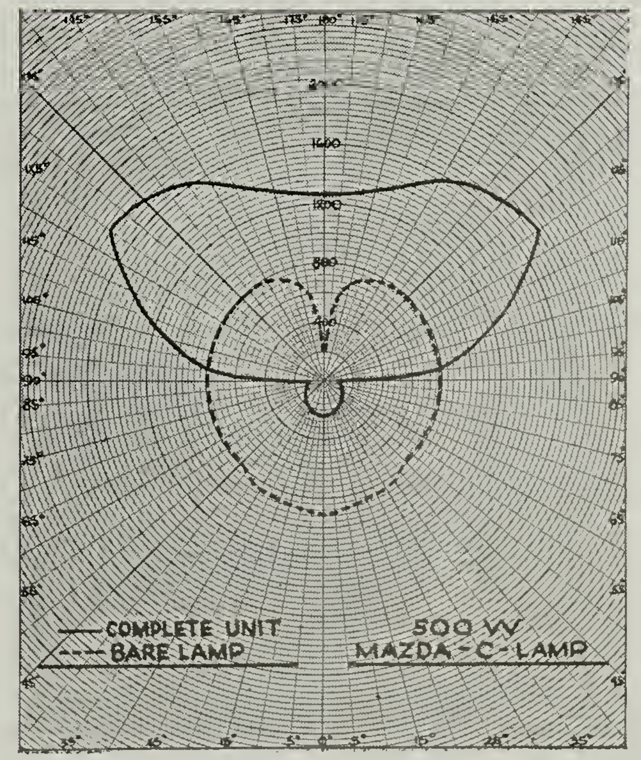


Semi-indirect with Denax glass bowl.

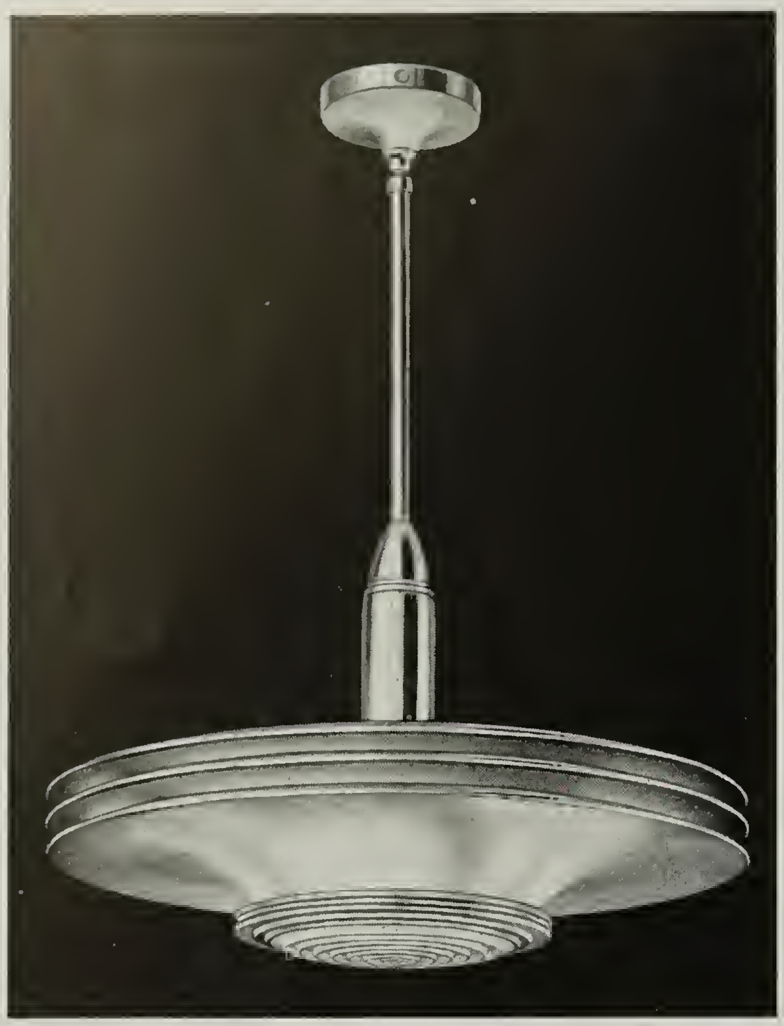
No. 1805S 22" Dia. 30" Susp. 36" O. A. 300-500W

Standard Finish: Silvertint.

CANDLEPOWER DISTRIBUTION CURVE

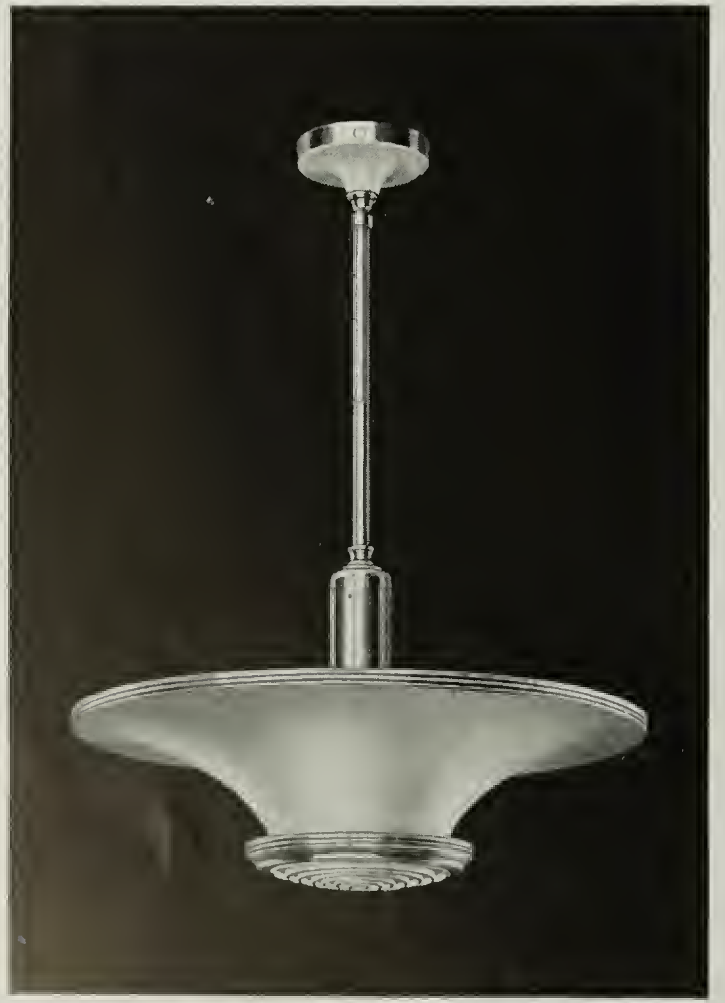


THE MODERNLUX



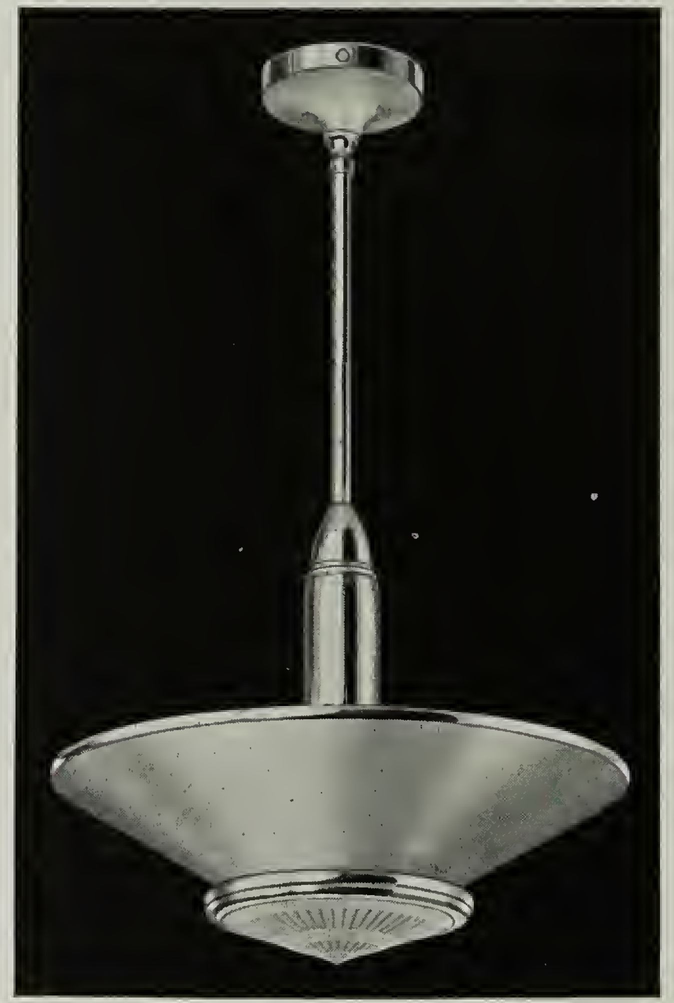
Semi-indirect luminous louvres with concentric lined white Monax glass bottom plate.
No. 1953 22" Dia. 30" Susp. 36" O. A. 300-500W
Standard Finish: Silvertint.
Furnished with a non-absorbing light baffle.

THE STREAMLITE



Semi-indirect luminous bowl with concentric lined white Monax glass bottom plate.
No. 1863 22" Dia. 30"Susp. 36" O.A. 300-500W
Standard **Finish:** Silvertint

THE CONILIER



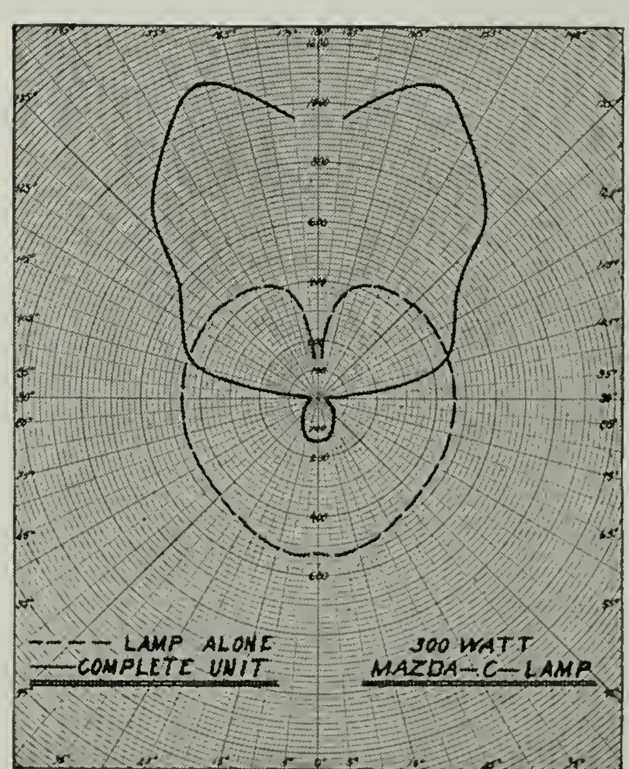
Semi-indirect with luminous bowl and conical white Monax glass bottom plate.

No. 1949 18" Dia. 30" Susp. 36" O. A. 300-500W

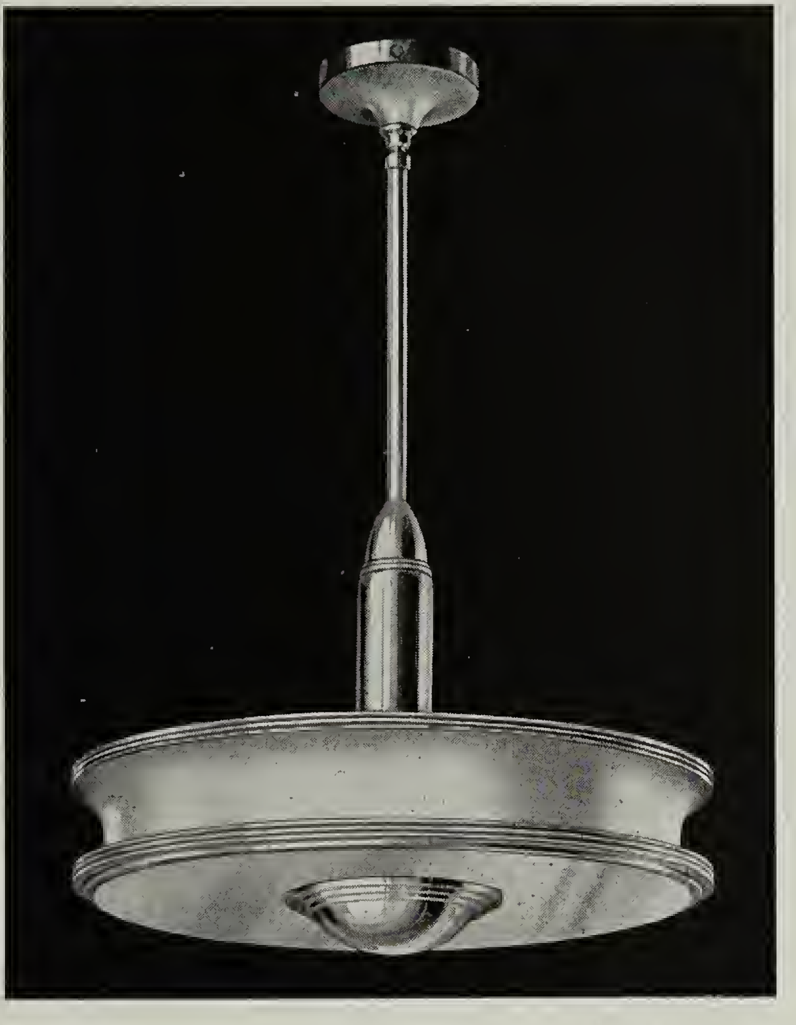
Standard Finish: Silvertint.

Furnished with a Non-Absorbing Light Baffle.

CANDLEPOWER DISTRIBUTION CURVE



THE SHELBOURNE



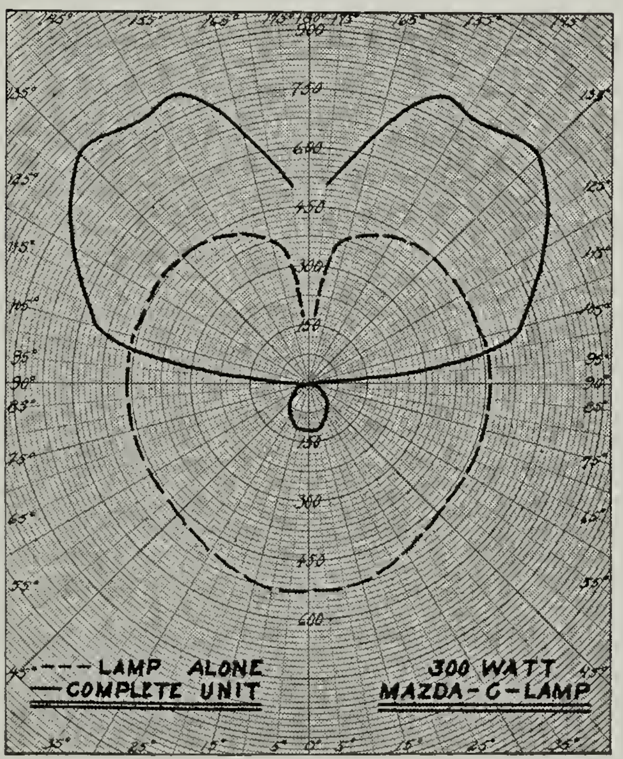
Semi-indirect, luminous drum, double thickness flashed opal glass bottom, polished metal cup.

No. 1951 20″ Dia. 30″ Susp. 36″ O. A. 300-500W

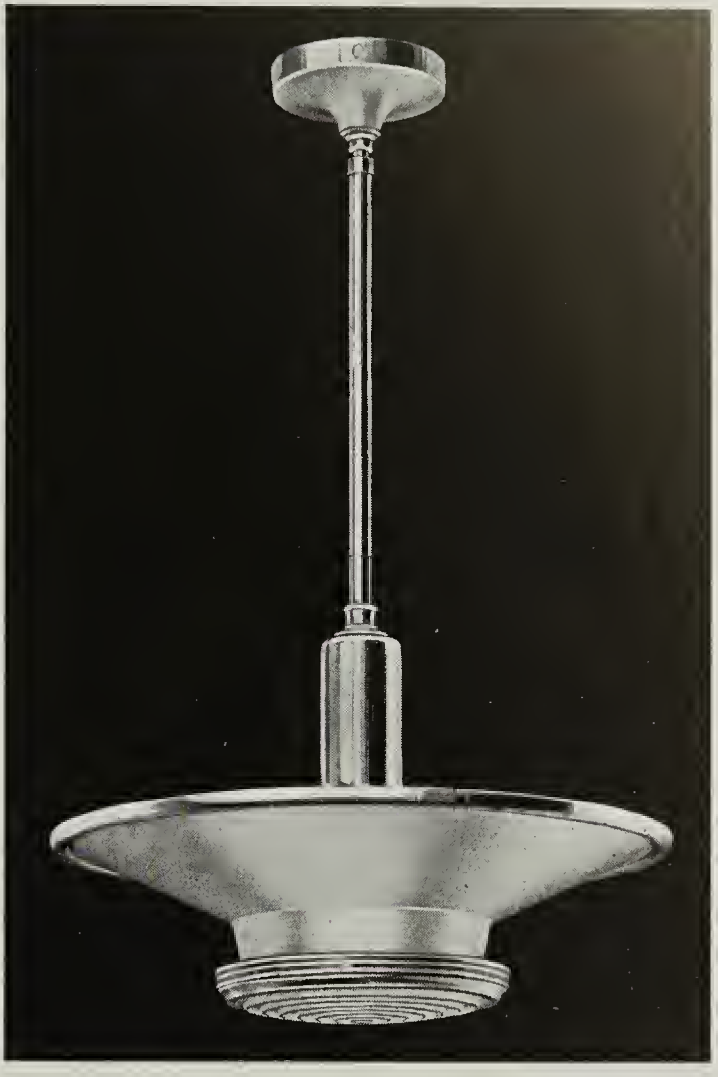
Standard Finish: Silvertint.

Furnished with a non-absorbing light baffle.

CANDLEPOWER DISTRIBUTION CURVE



THE AEROLUX



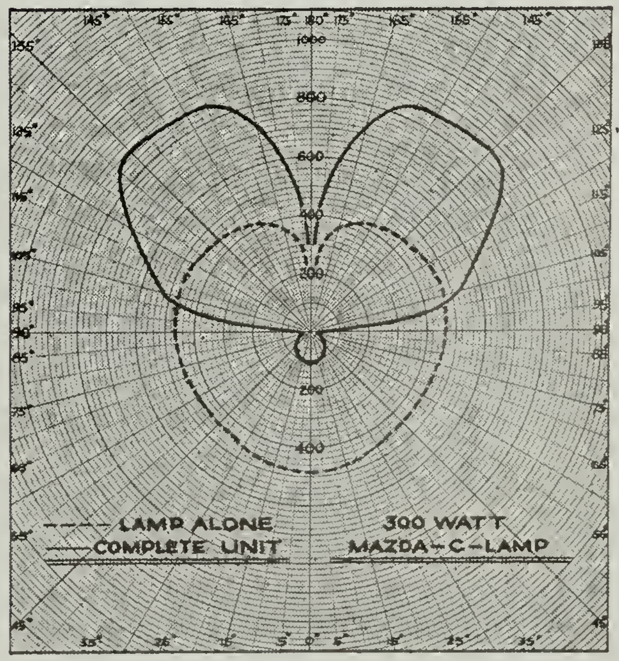
Semi-indirect luminous bowl with concentric lined white Monax glass bottom plate.

No. 1915 18″ Dia. 30″ Susp. 36″ O. A. 300-500W

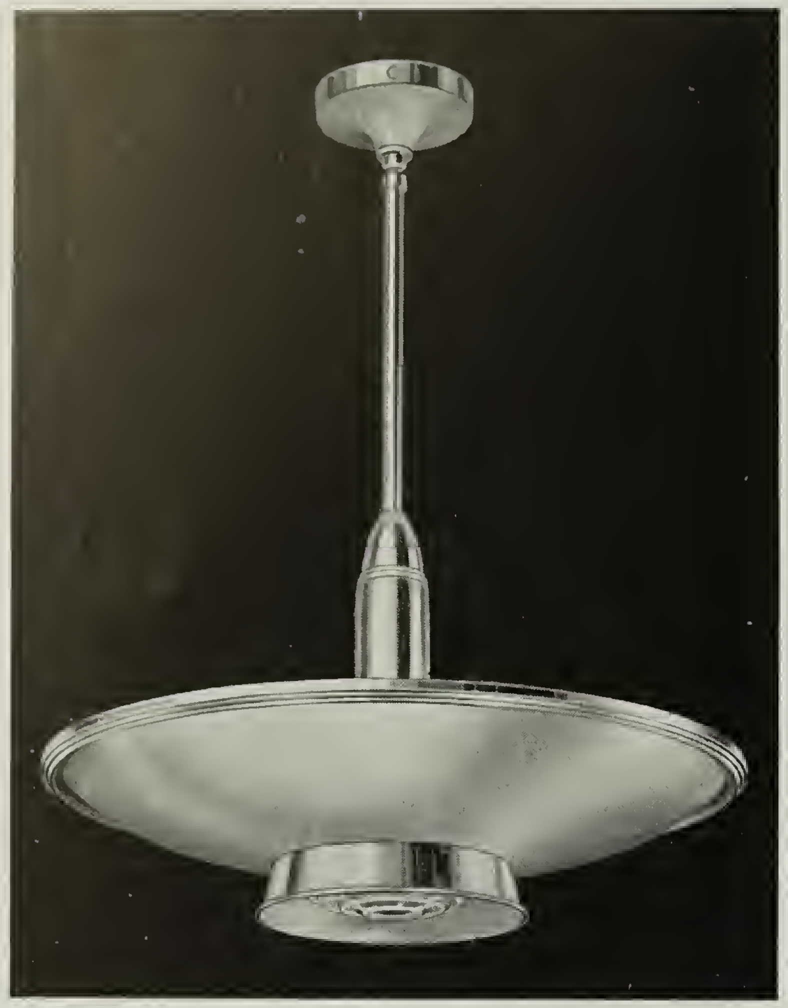
Standard Finish: Silvertint.

Furnished with a non-absorbing light baffle.

CANDLEPOWER DISTRIBUTION CURVE



THE LENSLIER

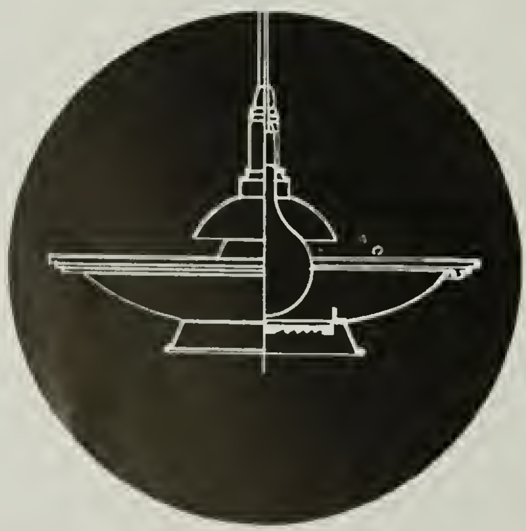


Direct-Indirect, using Art Metal "Widelite" glass lens. Metal bowl.

No. 1930 22" Dia. 30" Susp. 35" O. A. 300-500W
Standard Finish: Silvertint.

Furnished with a non-absorbing **light baffle.**

The Lenslier system as utilized in small bays is a direct-indirect system of illumination. The precise downward component of light directed to a predetermined area is the feature of the system as this component is specifically controlled by an Art Metal Widelite glass lens. Because of this precise downward beam of light the spacings of the units must be exact to obtain even illumination. Mounting and spacing tables with levels of expected illumination are given for your assistance.



Quarter section of No. 2485—**showing position of lamp in relation to AMCO Widelite glass lens.**

CANDLEPOWER DISTRIBUTION CURVE

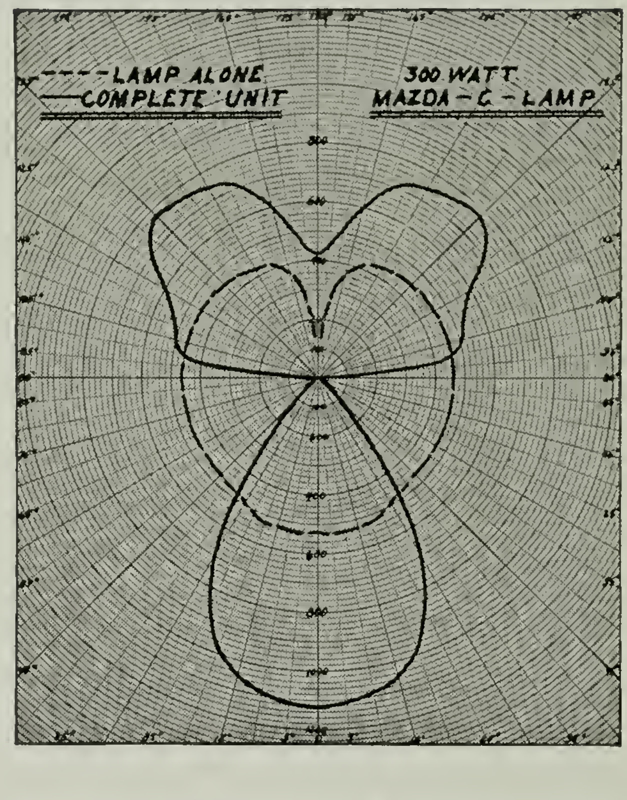


Table of Footcandle Levels, Lenslier System

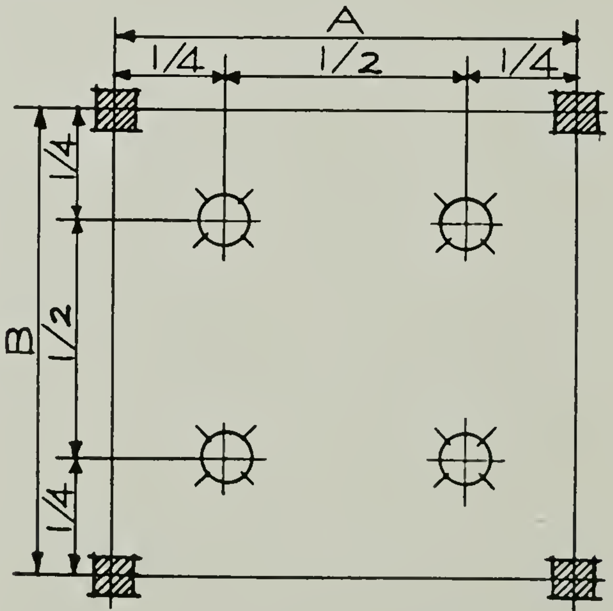
(Utilizing 4 No. 1930—300W Lenslier direct-indirect units)

Size of Bay A-B	Ceiling Height 12 to 14 ft.	Ceiling Height 14 to 16 ft.
14 ft.	**23.5 fc.**	**21.2 fc.**
16 ft.	**18 fc.**	**16.2 fc.**
18 ft.	**14.2 fc.**	**12.8 fc.**
Suspension	**2'-6"**	**3'-0"**

These levels of illumination hold only for A SINGLE BAY area—Reflection factors—ceiling 80%—side walls 50%.

For MULTIPLE BAYS, multiply the footcandle levels by 1.5 for average footcandle level throughout the area.

In large bay areas, the No. 2485 Lenslier augmented with four units of the Art Metal Optical System of Direct Illumination will produce even levels of illumination. This combination of direct-indirect lighting with direct lighting will give higher levels of illumination most economically. On the opposite page, spacing tables for even illumination, mountings and expected illumination levels are given to facilitate the utilization of this system.



The plan above shows correct spacing of outlets for this system.

DIRECT-INDIRECT LIGHTING SYSTEM

CANDLEPOWER DISTRIBUTION CURVE

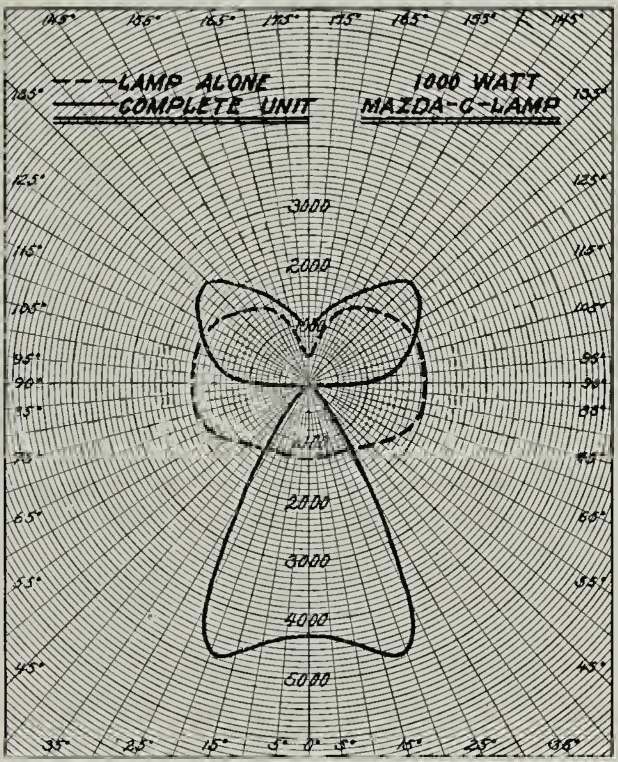


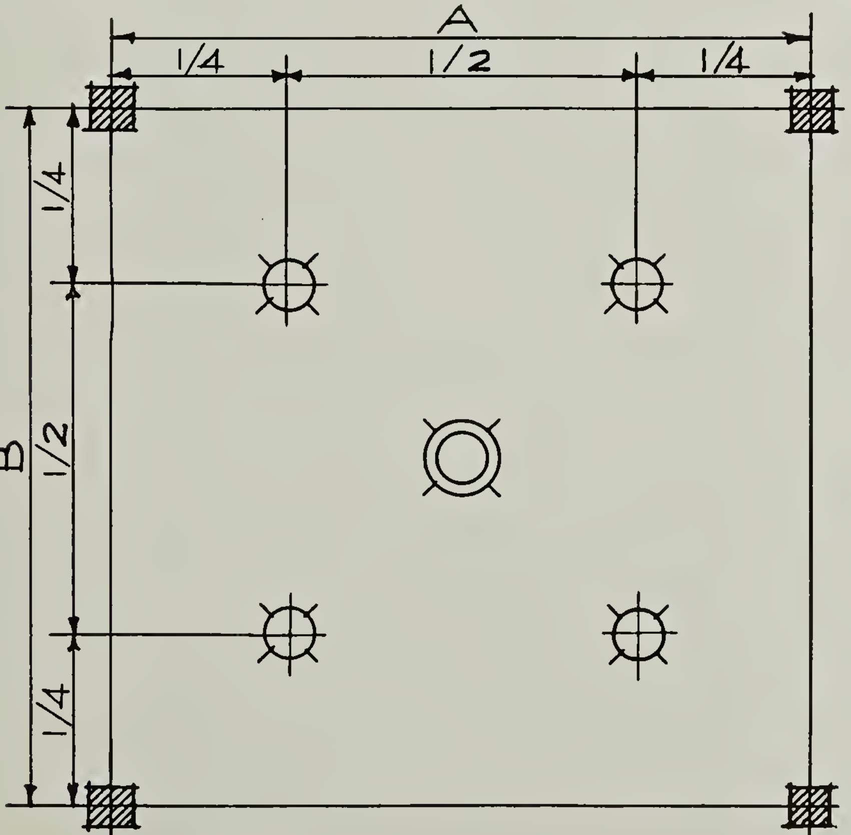
Table of Footcandle Levels, Lenslier System With Recessed Lens Auxiliaries

(Utilizing 1 No. 2486—1000W Lenslier direct-indirect unit and ★ 4 No. 480C—300W—round RECESSED AMCO lens units)

Size of Bay A-B	Ceiling Height	
	17 to 20 ft.	20 to 22 ft.
18 ft.	**30.6 fc.**	**25.6 fc.**
20 ft.	**25.9 fc.**	**22.6 fc.**
22 ft.	**23.7 fc.**	**21.4 fc.**
24 ft.	**19.9 fc.**	**18 fc.**
Suspension	**5'-0"**	**7'-0"**

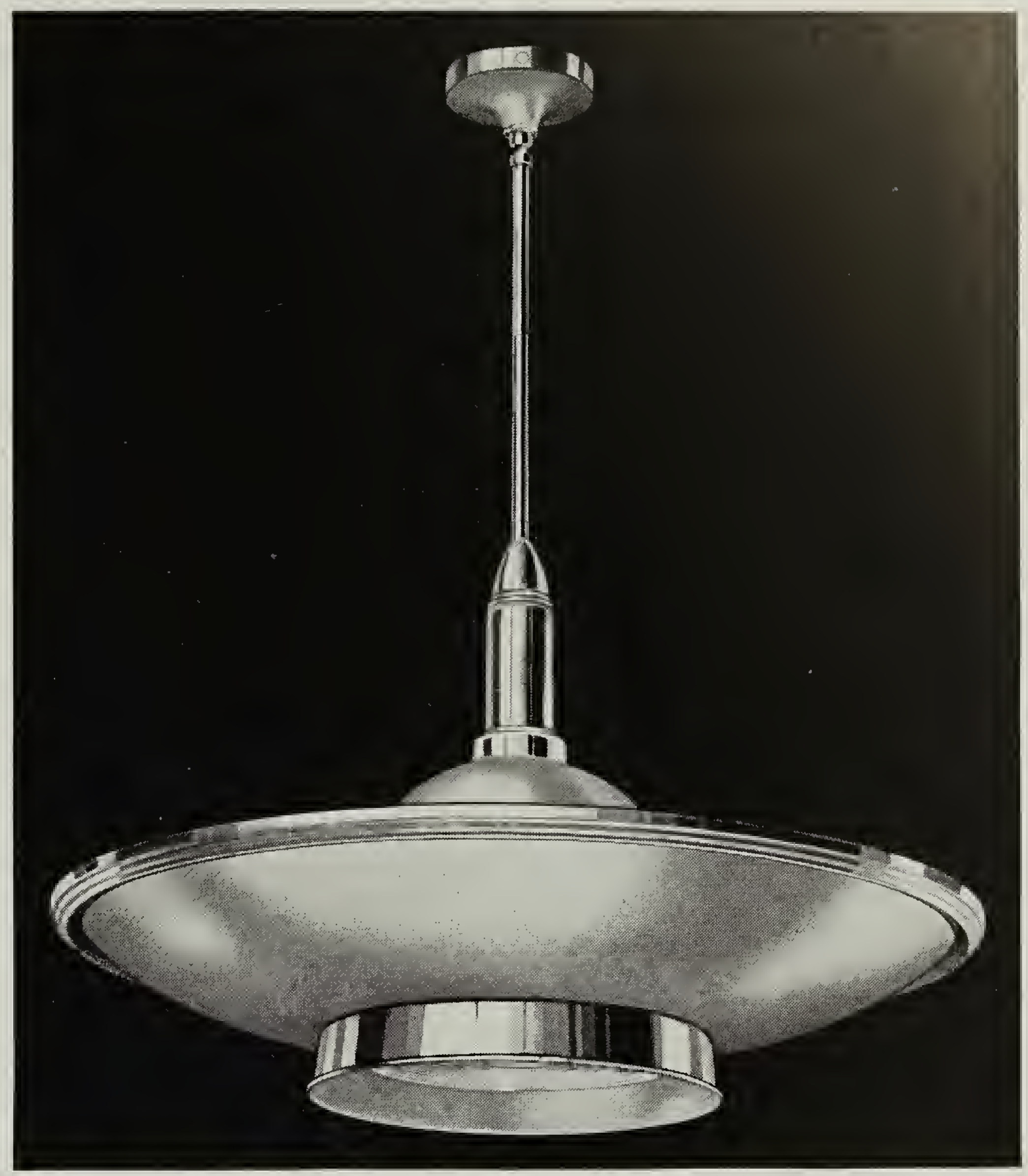
These levels of illumination hold only for a SINGLE BAY area—Reflection factors—ceiling 80%—side walls—50%. FOR MULTIPLE BAYS multiply footcandle levels by 1.5 for average footcandle level throughout the area.

★ The No. 480C is cataloged in detail on page 28—if it is impractical to INSERT units in ceiling. The same results can be obtained with No. 467C—300W—EXPOSED Amco lens units shown on page 22.



The plan above shows correct spacing of outlets for this system.

THE LENSLIER



Direct-Indirect using Art Metal "Widelite" glass lens. Metal bowl.

No. 2485—30" Dia.—36" Suspension—43" O.A.—750-1000-1500W

No. 2486—Same as 2485 except with AMCO COLORISER LENS—See page 21.

Standard Finish: Silvertint.

Furnished with specular **Alzak spherical reflector.**

Direct Round Recessed Unit—Amco Lenses

Cat. No.	Distribution
★ 480	**Widespread**
★ 480C	**Coloriser Lens—Widespread**

Lens Size: 11¼" dia.—Face Plate—15⅛" dia.

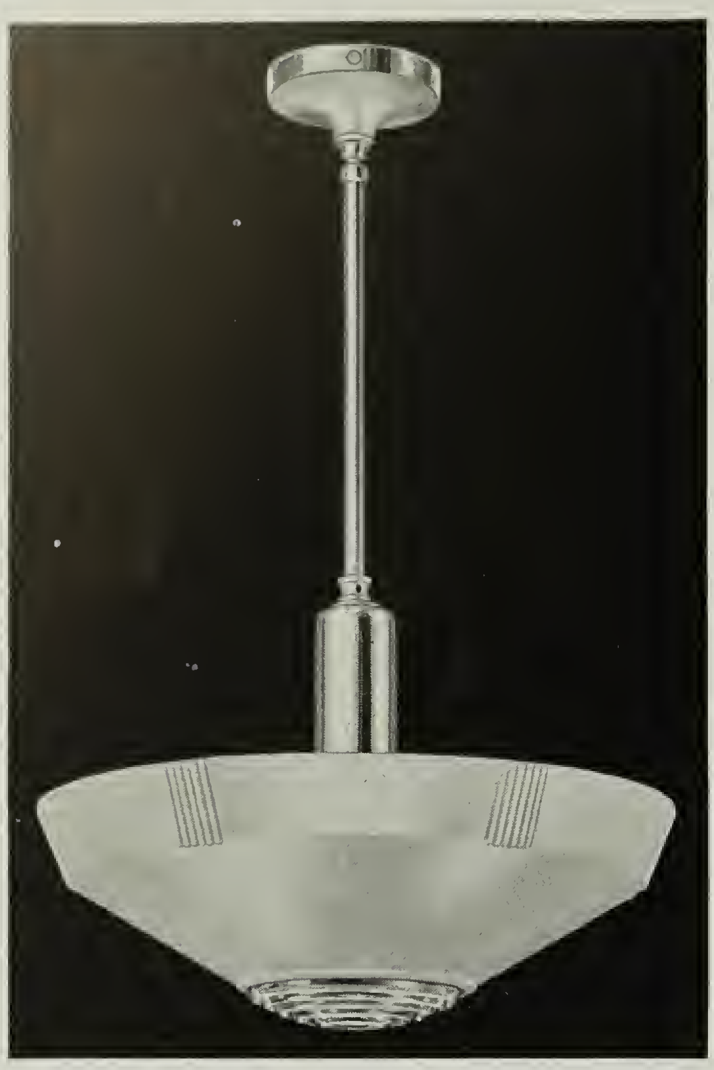
Insert Box Size: 13½"x11".

Max-watts: 300W. Med. Base.

Standard Finish: Satin Aluminum.

Drop hinged Front (See page 28 for light distribution and specifications).

THE LENSPLASTIC



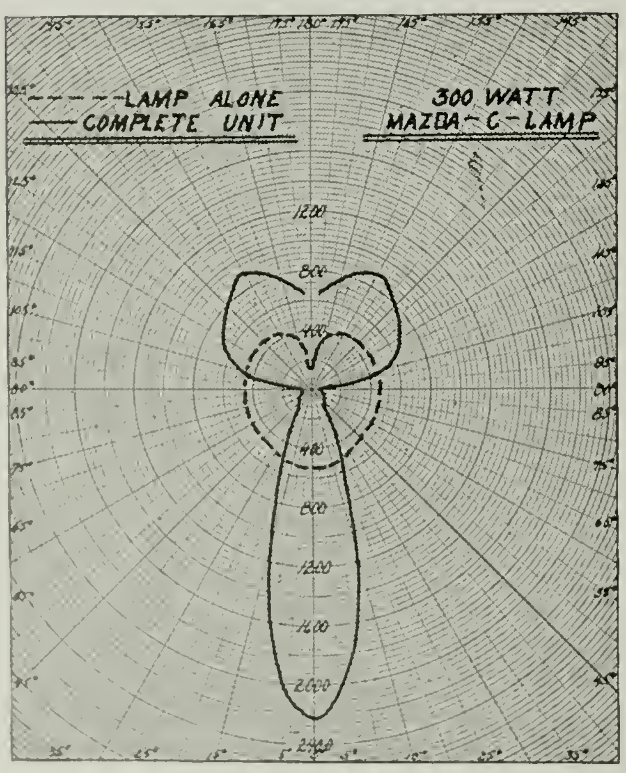
Direct-Indirect plastic bowl with Art Metal "Widelite" glass lens downlight control.

No. 1943 18⅝" Dia. 30" Susp. 36" O.A. 300-500W

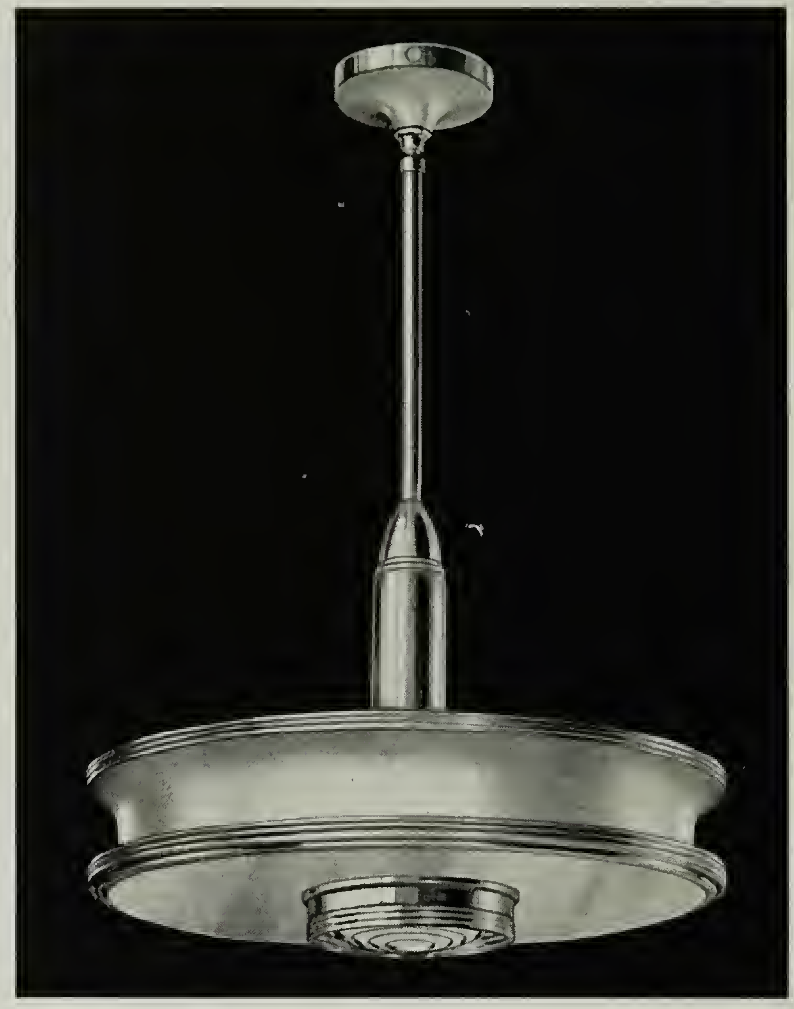
Standard Finish: Silvertint.

Furnished with a non-absorbing light baffle.

CANDLEPOWER DISTRIBUTION CURVE



THE SHELBOURNE



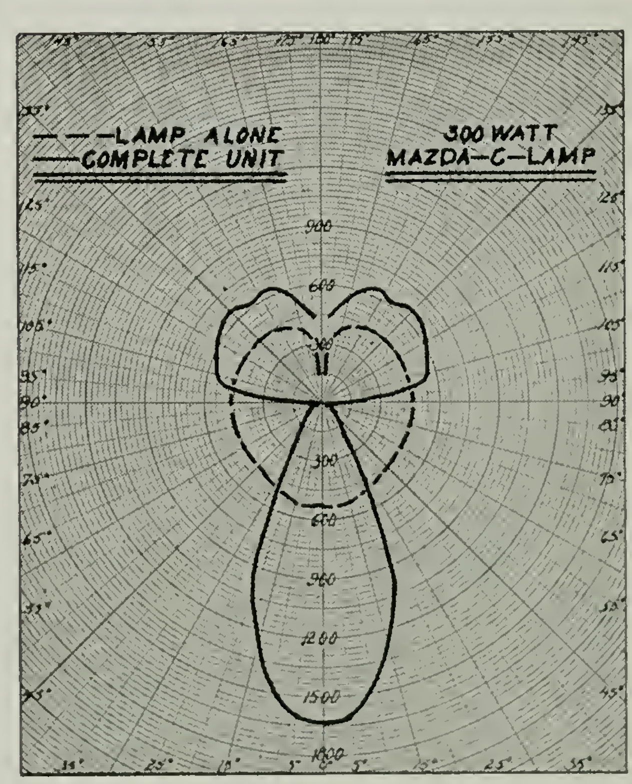
Direct-indirect, luminous drum, double thickness flashed opal glass bottom, metal skirt houses Art Metal "Widelite" Glass lens.

No. 1952 20" Dia. 30" Susp. 36" O. A. 300-500W

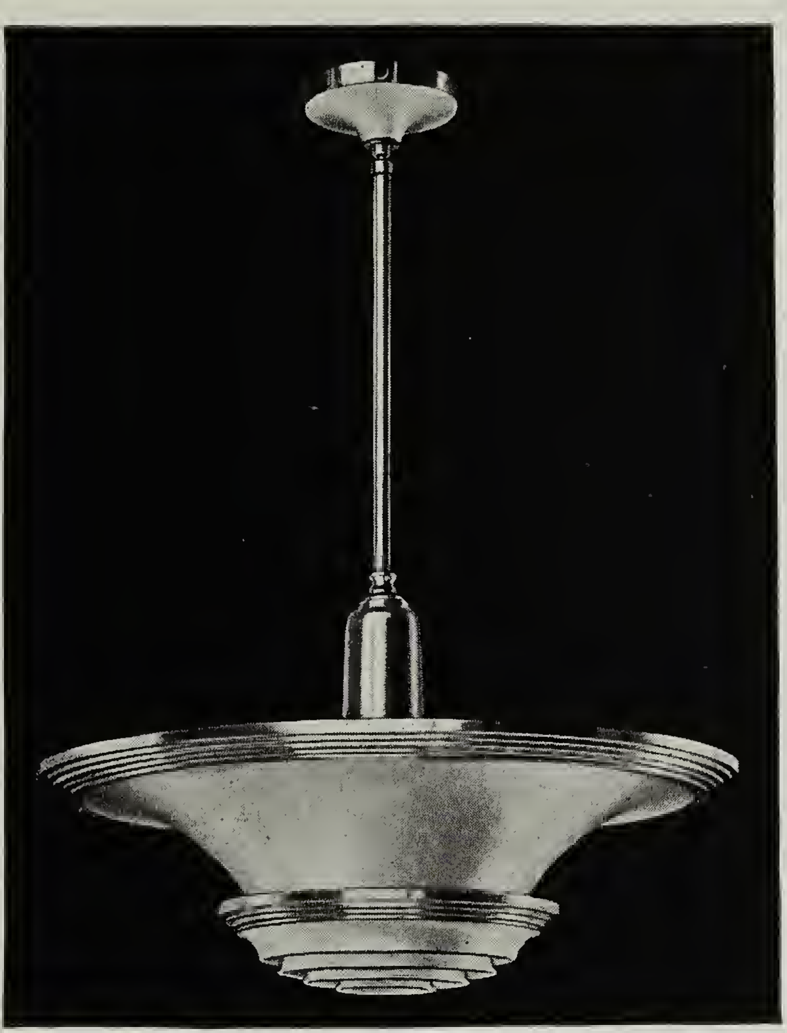
Standard Finish: Silvertint.

Furnished with a non-absorbing light baffle.

CANDLEPOWER DISTRIBUTION CURVE



THE LOUVRLIER

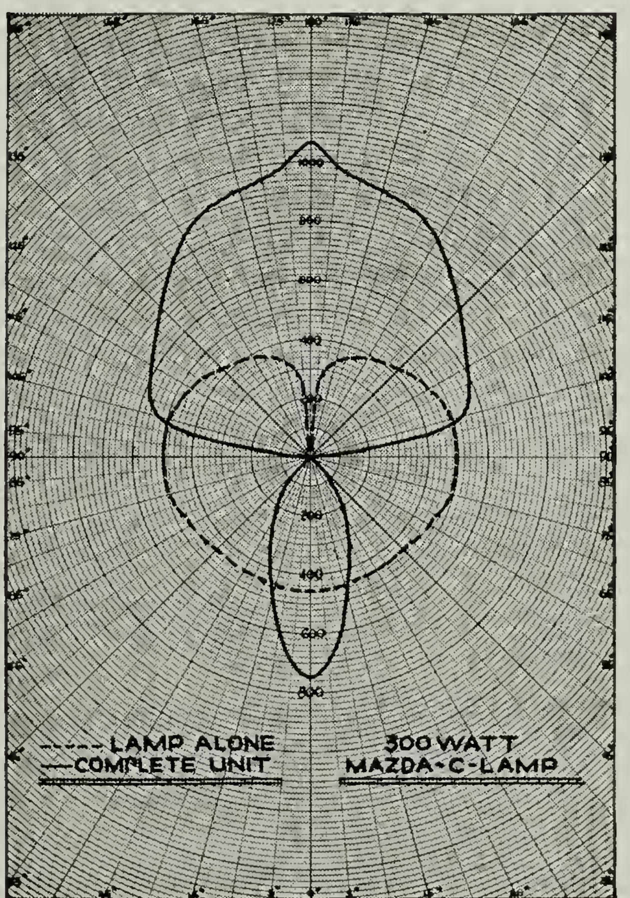


Direct-indirect luminous metal bowl, with metal concentric louvres.

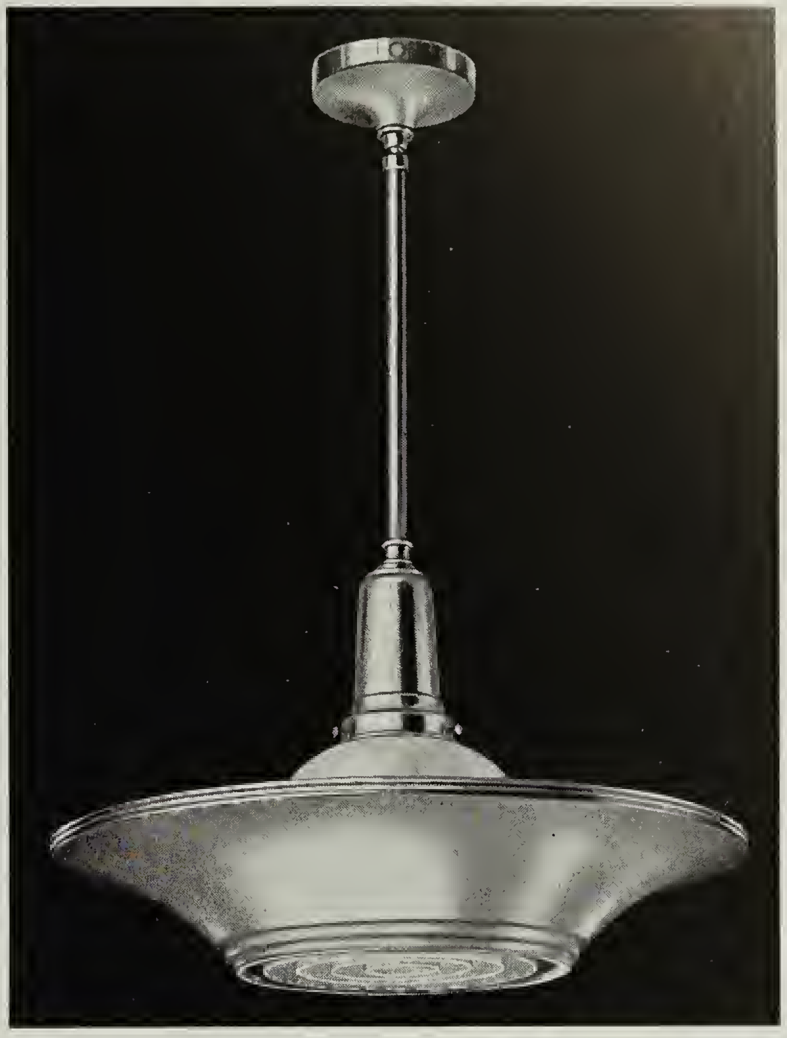
No: 1815S	18" Dia.	30" Susp.	36" O. A.	200W
No. 1758S	22" Dia.	30" Susp.	38" O. A.	300-500W
No. 1803S	30" Dia.	36" Susp.	46" O. A.	750-1000W

Standard Finish: Silvertint—Louvres White.

CANDLEPOWER DISTRIBUTION CURVE



THE RADILUX

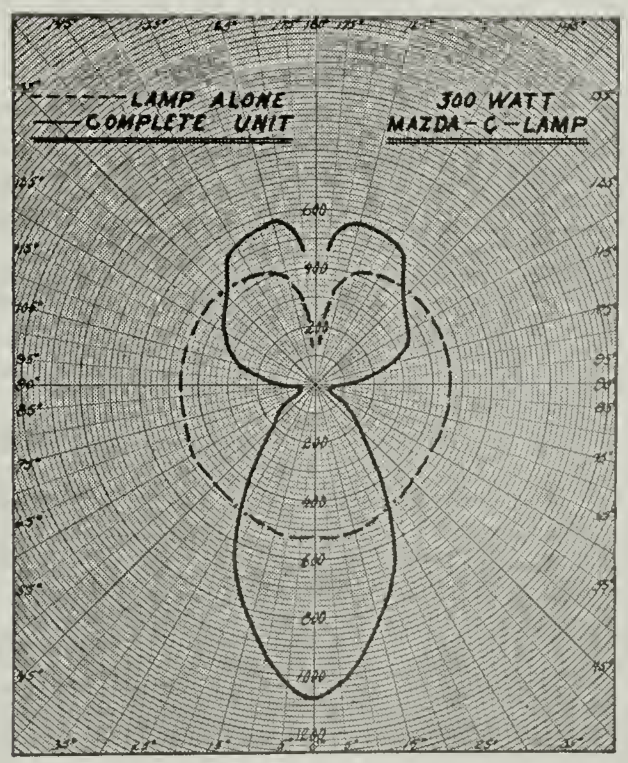


Direct-indirect—the inner glass reflector directs a greater percent of light down. Metal concentric bottom louvres. Metal deflector.

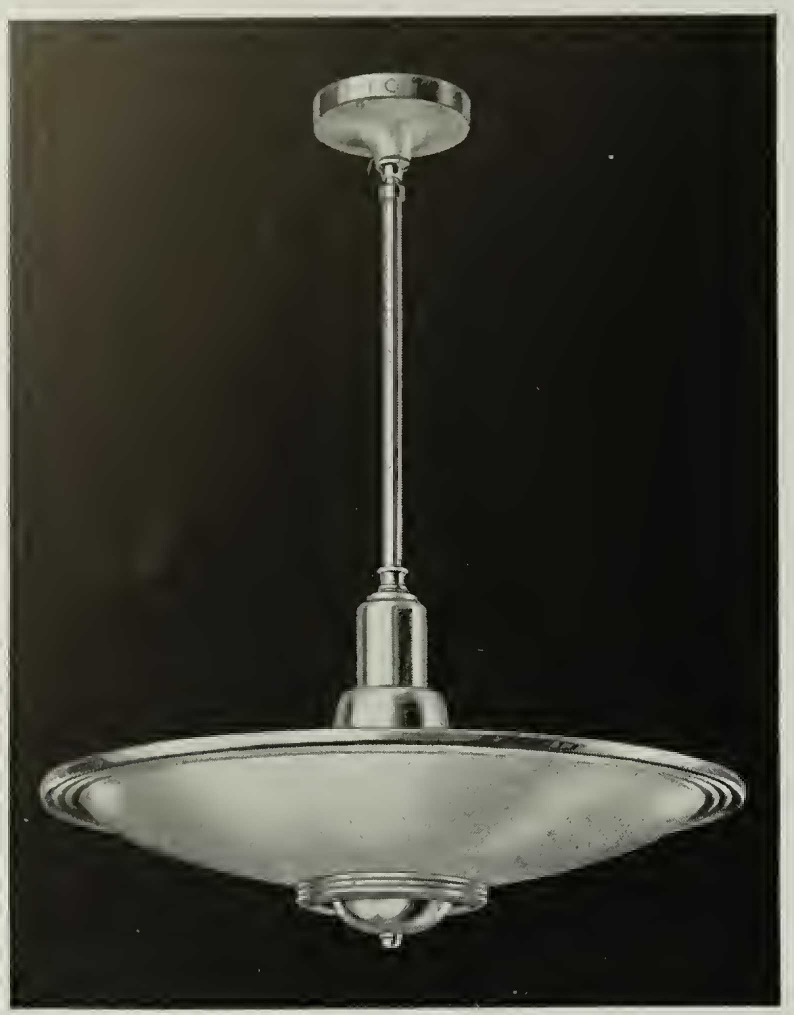
No. 1946	22" Dia.	30" Susp.	34" O. A.	300-500W

Standard Finish: Silvertint—Louvres White.

CANDLEPOWER DISTRIBUTION CURVE



THE BROADCASTER for Bipost Lamp



Indirect shallow metal bowl with luminous bottom effect. For Bipost Lamps only.

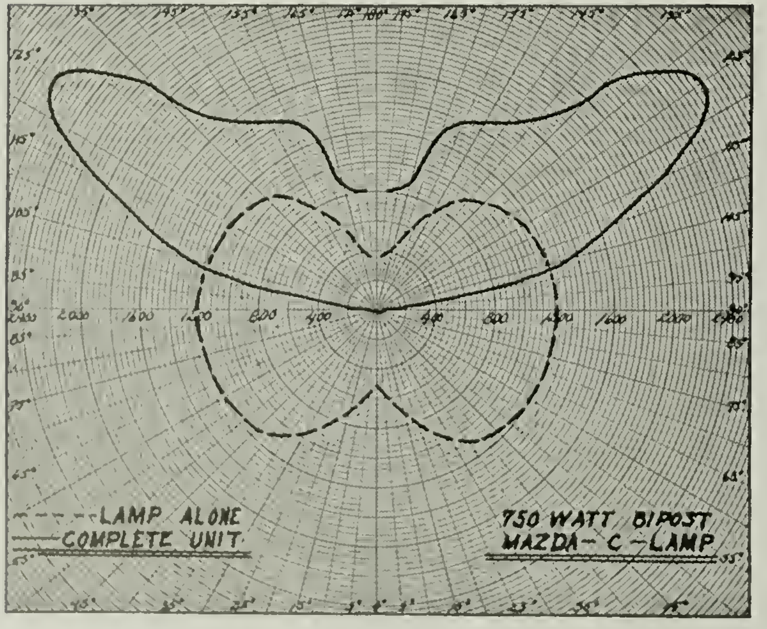
No. 1947 22" Dia. 30" Susp. 36" O. A. 750-1000W **Bipost**

Standard Finish: Silvertint.

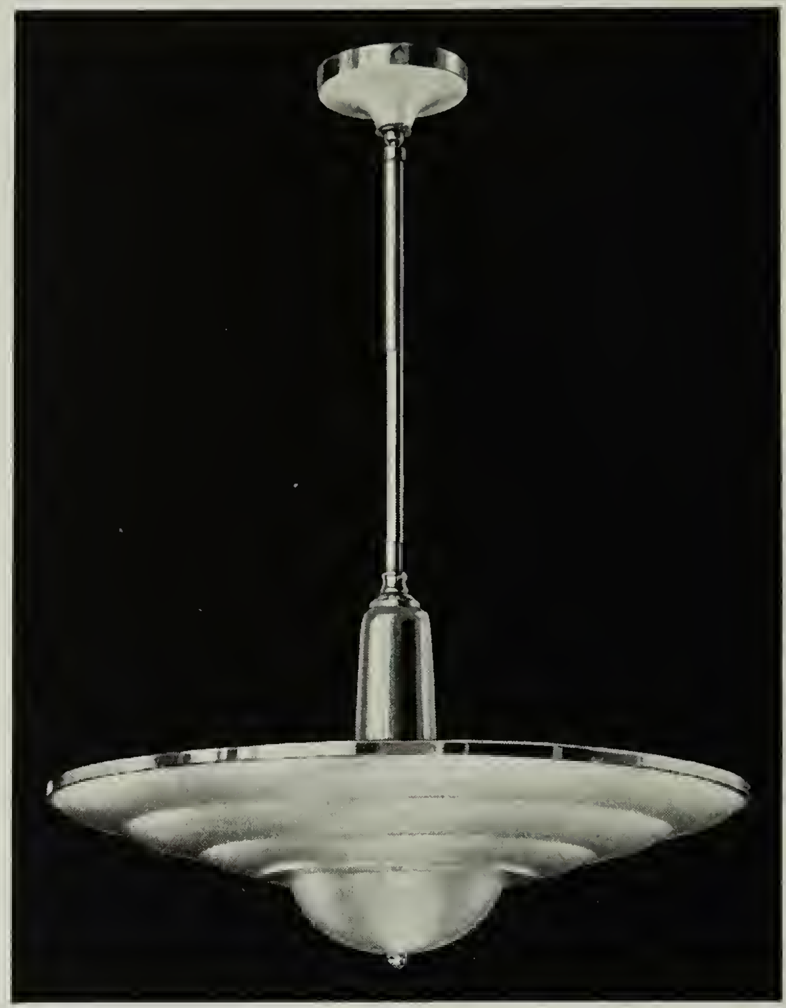
Furnished with a non-absorbing light baffle.

This unit has an extremely widespread distribution of light so necessary where outlets are spaced too far apart for good coverage of light. Because of this distribution, large lamps may be utilized with low ceiling brightness.

CANDLEPOWER DISTRIBUTION CURVE



THE DISTRIBUTOR



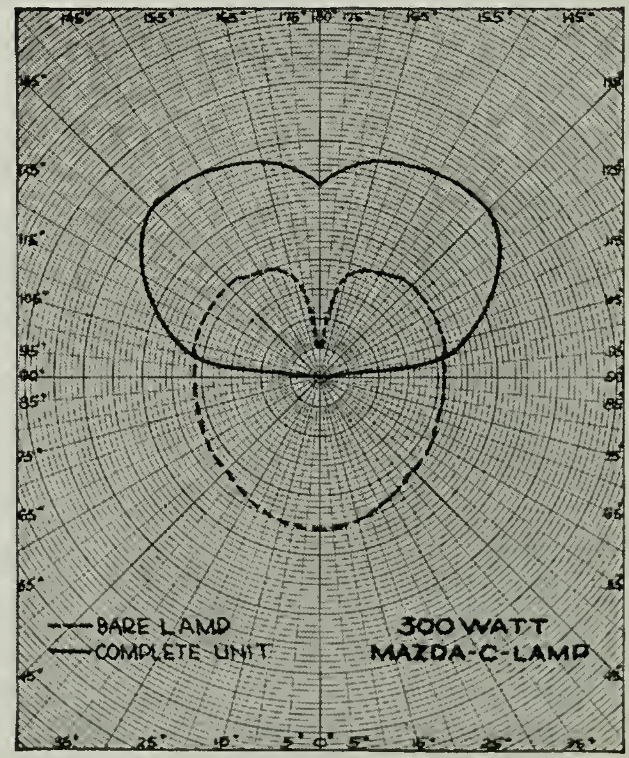
Indirect shallow metal bowl for "PS" lamps only.

Swivel Stem Pend.	Chain Pend.	Dia.	Susp.	O. A.	Wattage
No. 1733S	**No. 1733**	22"	30"	36"	300-500W
No. 1761S	**No. 1761**	18"	30"	35"	300W
No. 1762S	**No. 1762**	18"	30"	35"	200W
No. 1802S		30"	36"	45"	750-1500W

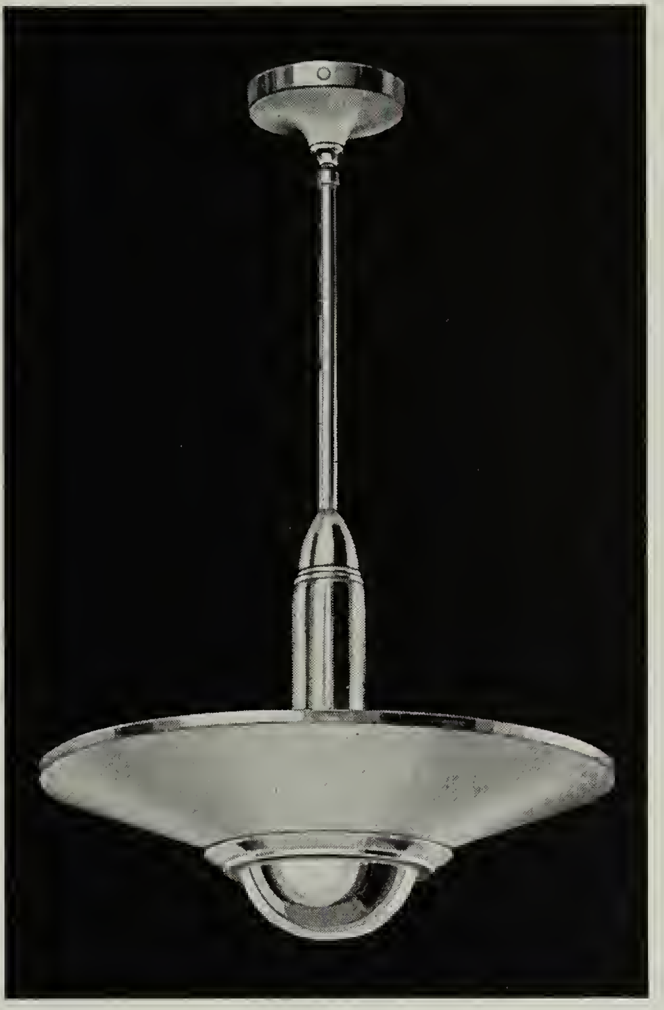
Standard Finish: Silvertint.

Alzak finish obtainable on 18" and 22" dia. only.

CANDLEPOWER DISTRIBUTION CURVE



THE REGAL



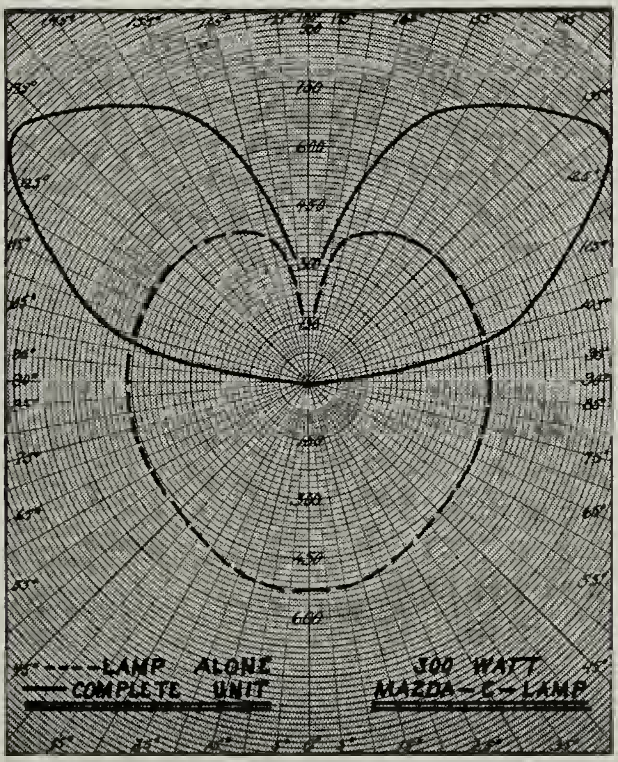
Indirect with luminous metal bowl.

No. 1956 18" Dia. 30" Susp. 36" O. A. 300-500W

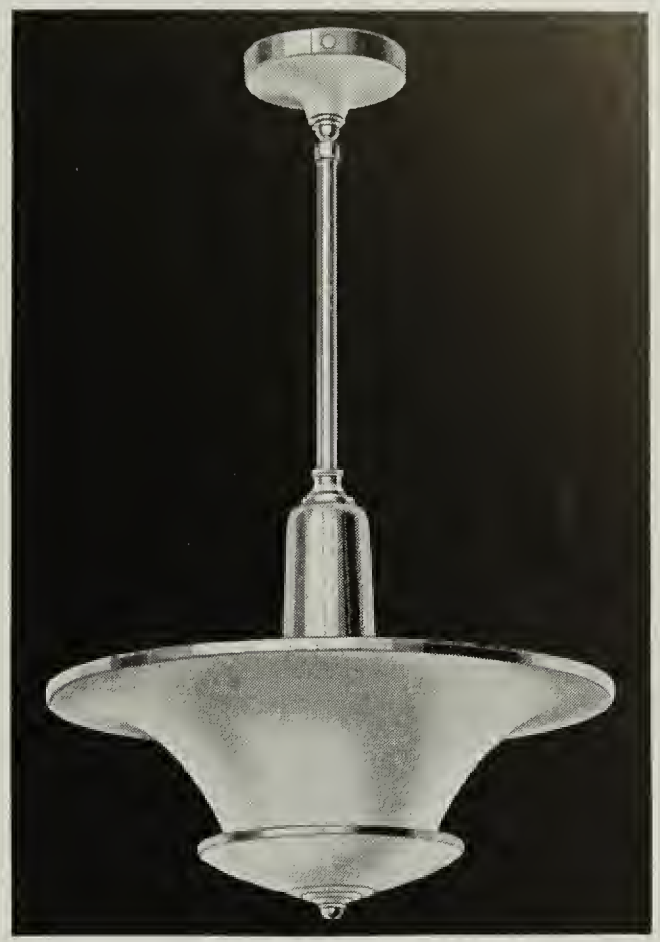
Standard Finish: Silvertint.

Furnished with a non-absorbing light baffle.

REGAL CANDLEPOWER DISTRIBUTION CURVE



THE PARLUX

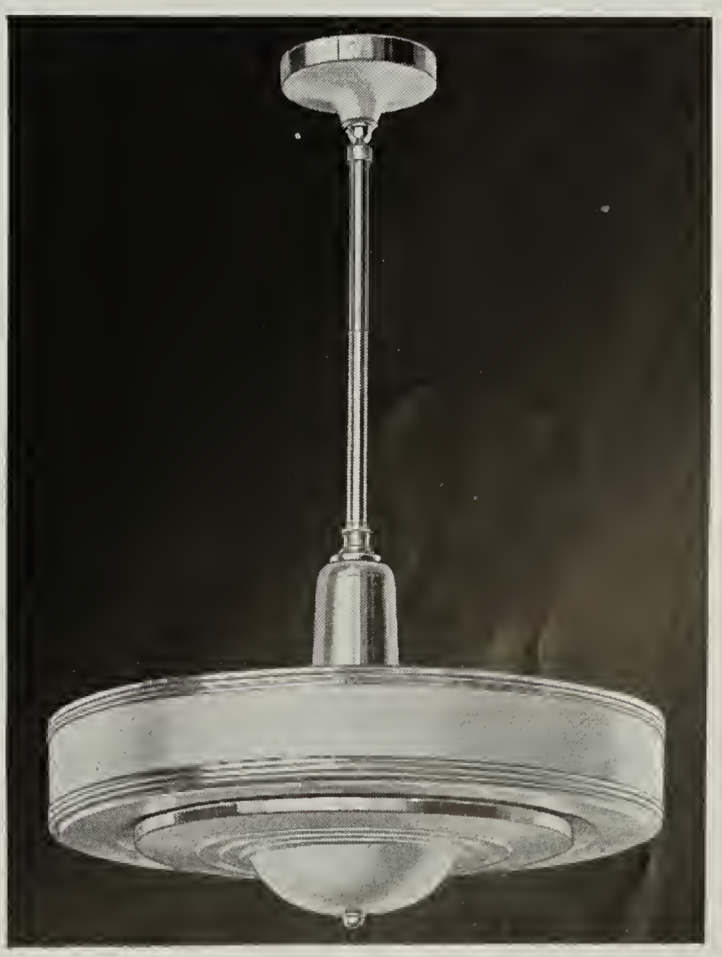


Indirect with luminous metal bowl.

Swivel Stem Pend.	Chain Pend.	Dia.	Susp.	O. A.	Wattage
No. 1788S	**No. 1788**	18"	30"	38"	300-500W

Standard Finish: Silvertint.

THE ULTRALITE

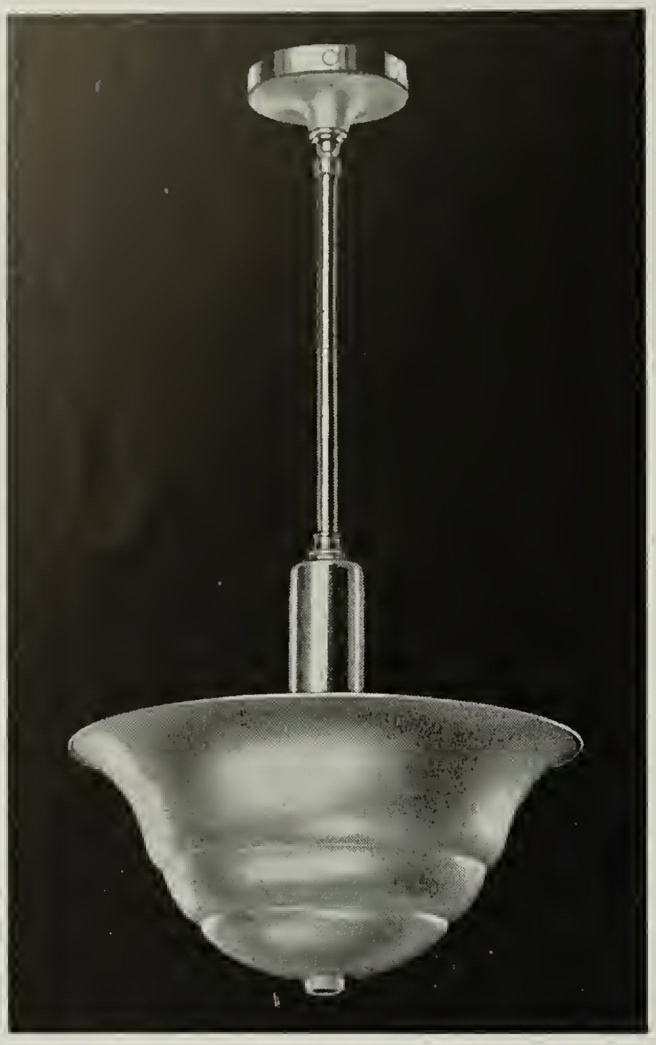


All metal indirect with luminous ring on bottom surface.

No. 1780S 20" Dia. 30" Susp. 36" O. A. 300-500W

Standard Finish: Silvertint.

PENCILITE



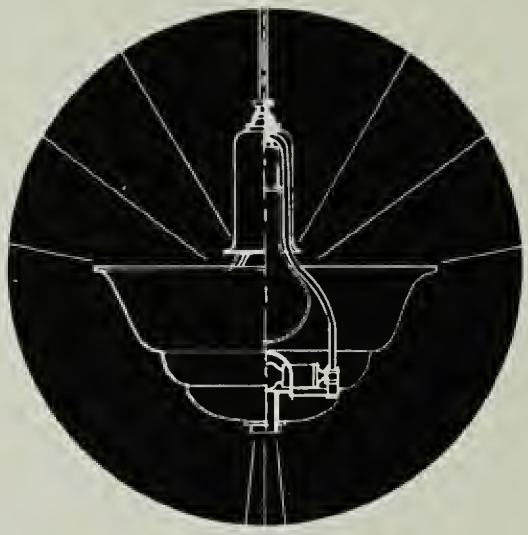
Indirect Metal Bowl with Direct Nite-Lite.

Cat. No.	Dia.	Suspension	O.A.	Watts
2563	17"	30"	38"	1-200 IF 1-10-S11

Standard Finish: Silvertint.

Wired for 2 circuits.

Can be furnished with canopy switch.



PATENTED

Quarter section of No. 2563 Pencilite—showing construction that provides light-tight nite-lite in bottom of unit.
200 watt lamp for indirect component. 10 watt lamp for down-light component.

The PENCILITE was developed and designed for the specific purpose of room lighting in hospitals. A unique and patented construction produces two totally different types of illumination from two separate and distinct sources from within the confines of a single luminaire.

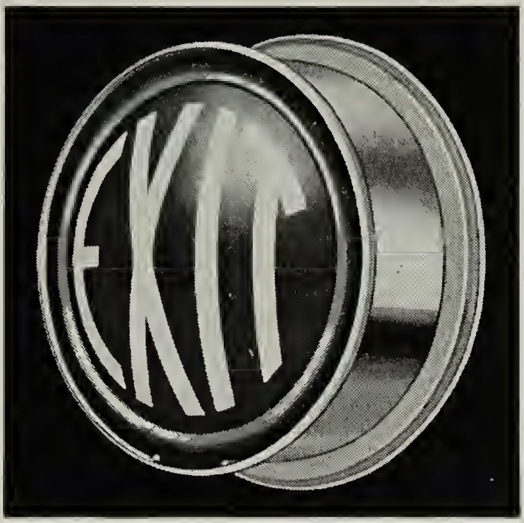
A totally indirect type of unit evolves when the 200 watt lamp is utilized in the upper part of the bowl. The usage of this system provides general room illumination of the highest quality.

The exclusive feature of employing a 10-watt, S-11 lamp housed separately from the indirect portion of the unit, provides a pencil of light. The housing forms a specifically contoured reflector which concentrates the light through a narrow black aperture. This nite-lite assembly forms a down-light with no spilled light, abolishing reflected light from ceiling and side walls. This Pencil of light downward makes objects discernable, and yet the source is not apparent.

The complete unit is wired for 2 circuits, one for the 200-watt lamp producing general room illumination, and the other, for the controlled nite-lite feature. The construction of the unit (see above construction sketch) consists of a metal bowl with the nite-lite located in the bottom. The bowl and nite-lite are held in juxtaposition by means of a harp-shaped tube assembly. This tube assembly allows easy relamping of the large lamp as well as permitting easy access to the nite-lite.

The PENCILITE through these unique features becomes ideal for hospital use.

EXIT LIGHTS

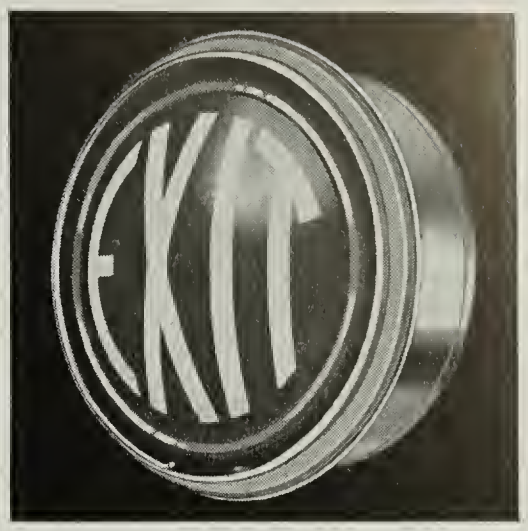


No. 2564—Surface Mounted
Unit Dia.—6⅜"—Wall Flange Dia. 7⅝".
Depth 3"—Watts—1-15.
Standard Glass: 5" opaque aluminum etched letters on Ruby Roundel (standard) Green (optional).
Finish: Silvertint.

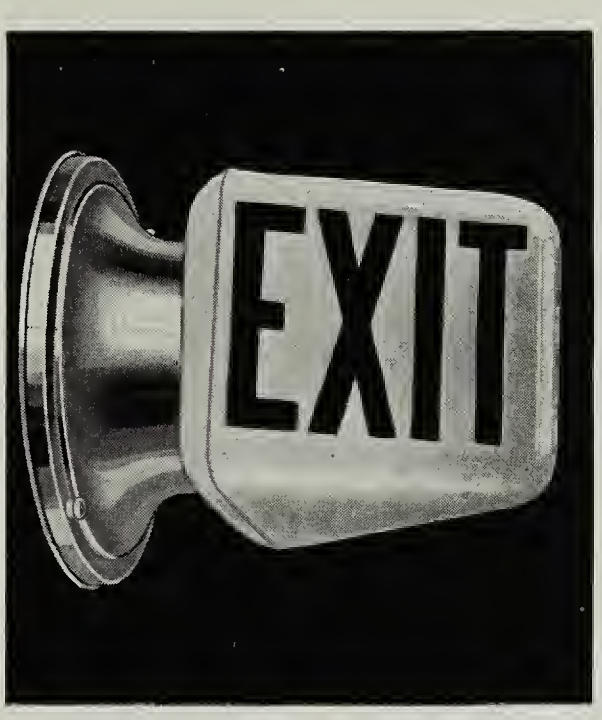
This EXIT LIGHT can be used for both Flush (recessed) or for Surface (exposed) mounting. The adjustable flange trim is flush with the wall in either instance. Furnished with mounting strap—back depressed for either mounting.

Advantages are:

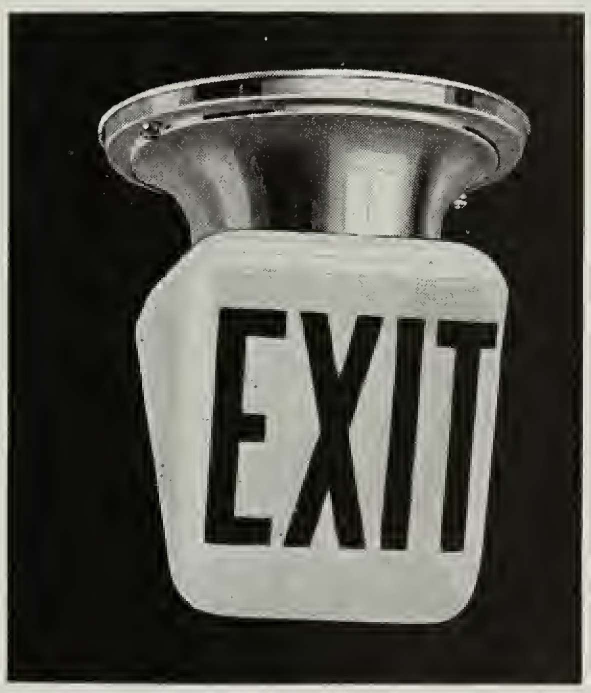
1. Two types of mounting with one unit (identical construction).
2. No guards necessary for use in gymnasiums or other rough-usage locations.
3. A spring steel locking ring holds glass Roundel firmly in position—instantly removeable by hand for relamping.



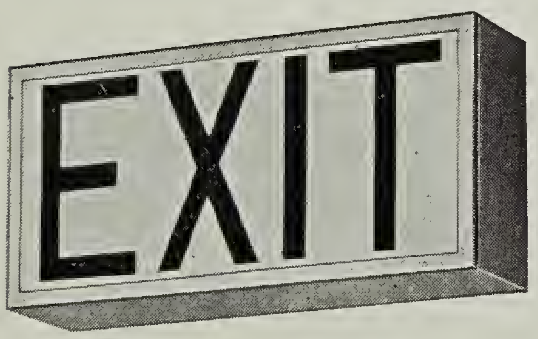
No. 2564—Flush Mounted
Insert Dia. 6⅜"—Wall Flange Dia. 7⅝".
Depth 3"—Watts 1-15.
Standard Glass: 5" opaque aluminum etched letters on Ruby Roundel (standard) Green (optional).
Finish: Silvertint.



No. 209
Exit bracket, 4" red lettering on two sides. Canopy 7½" diam. Extends 8¾" overall.
Finish: Statuary Bronze—Pewter—Chromium.



No. 210
Ceiling exit, 4" red lettering on two sides. Canopy 7½" diam. 8¾" deep overall.
Finish: Statuary Bronze—Pewter—Chromium.



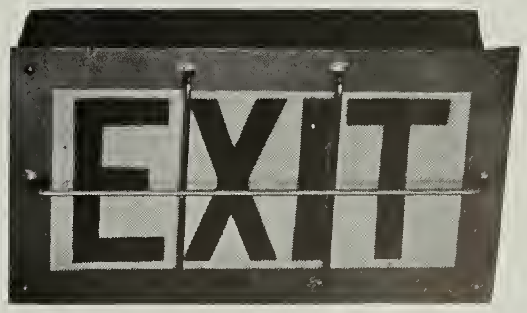
Cat. No. 117—Surface Type Plain

Standard Glass: Red letters on opal glass.

Optional Glass: White letters on red, green or black background. Green or black letters on white background.

Boxes have knockouts for ½" conduit.

Flush type fronts attach with 4 screws.

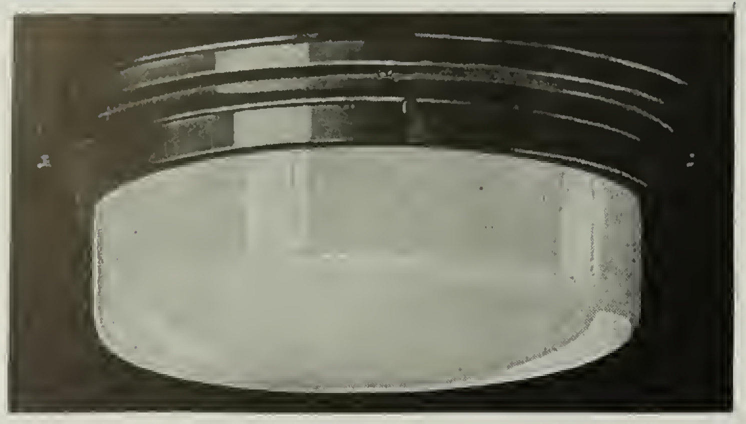


Cat. No. 702—Flush Type Guarded

Catalog No.	Type	Size Letters	Overall Size	Insert Size
115-5	Surface Type Guarded—Single Face	5"	12"x6" x3"	
115-6	Surface Type Guarded—Single Face	6"	12"x7¾"x3"	
117-5	Surface Type Plain—Single Face	5"	12"x6" x3"	
117-6	Surface Type Plain—Single Face	6"	12"x7¾"x3"	
Glass Slides in				
702-5	Flush Type Guarded—Single Face	5"	14"x8" x3"	12½"x6½"x3"
702-6	Flush Type Guarded—Single Face	6"	14"x9¾"x3"	12½"x8¼"x3"
722-5	Flush Type Plain—Single Face	5"	14"x8" x3"	12½"x6½"x3"
722-6	Flush Type Plain—Single Face	6"	14"x9¾"x3"	12½"x8¼"x3"

Standard Finish: Black. **Front Attached with 4 Screws.**

SPECIAL LOCATION LIGHTING

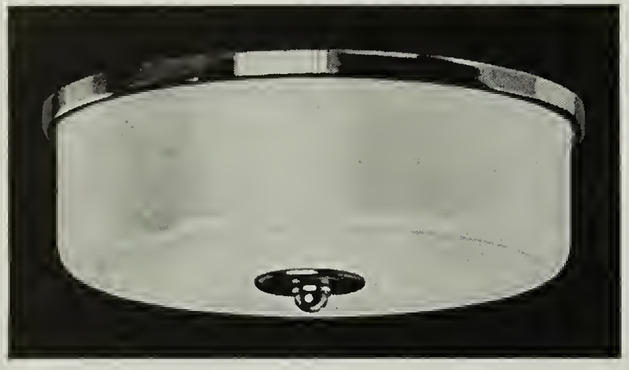


Two-piece hinged band with white Monax glass.

No. 216	Glass 12"x4"	Band 14" Dia.	2 Soc.	2-100W
No. 217	Glass 10"x3"	Band 12" Dia.	2 Soc.	2-100W
No. 218	Glass 14"x5"	Band 16" Dia.	3 Soc.	3-100W

Made of 22GA Brass—Complete with Reflector Plate and Cross Bar

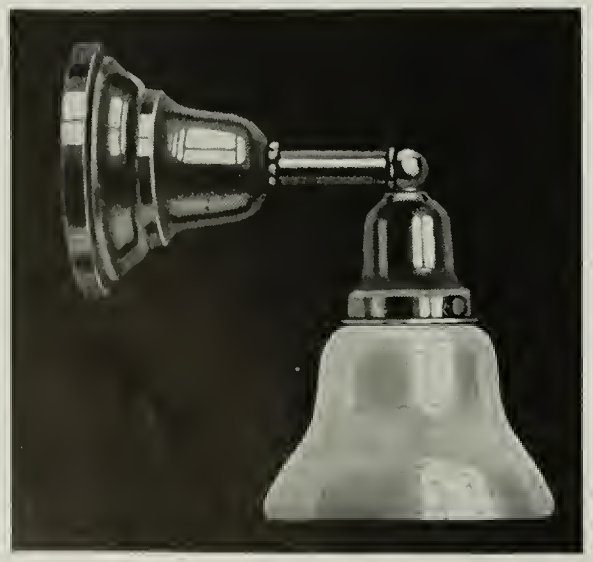
Finish: Statuary Bronze.



One-piece shallow band with white Monax glass.

No. 1738	Glass 8"x2½"	Band 8½" Dia.	2 Soc.	2-40W
No. 1739	Glass 10"x3"	Band 10½" Dia.	2 Soc.	2-100W
No. 1808	Glass 12"x4"	Band 12½" Dia.	2 Soc.	2-100W
No. 1809	Glass 14"x4½"	Band 14½" Dia.	3-Soc.	3-100W

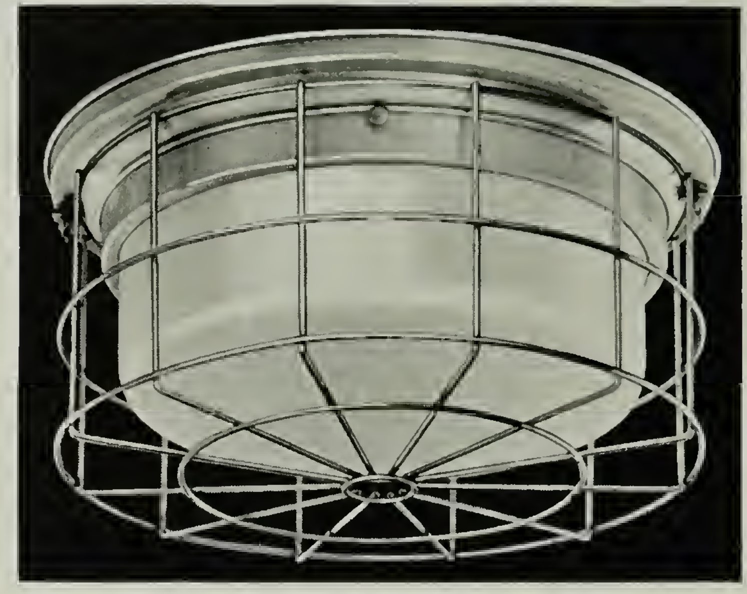
Finish: Statuary Bronze—Chromium.



No. 203 Bracket

No. 203—2¼" Fitter, 4½" white glass shade. Backplate 5¼" diam. Made of 22 gauge brass.

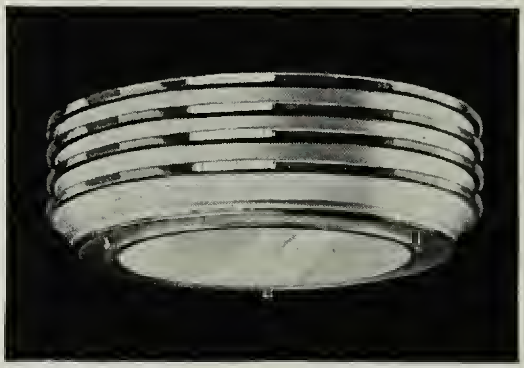
Finish: Statuary Bronze—Chromium.



Cat. No.	Dia.	Length O.A.	Glass	Watts
217C	12"	8½"	10"x3"	2-100
216C	14"	9"	12"x4"	2-100
218C	16"	9½"	14"x5"	3-100

Standard Finish: Statuary Bronze.

Made of 22 Ga. Brass. Complete with reflector plate and cross bar—2-piece hinged band. Rugged wired guard electric welded.

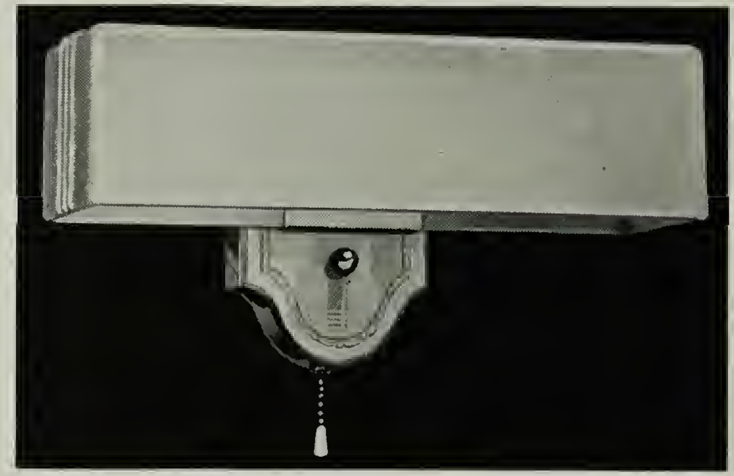


No. 1746L

Cat. No.	Dia.	Length O.A.	Watts
1746L	11¾"	3⅞"	2-100
1763L	15"	6"	2-150

Standard Finishes: Ivory and Gold, Goldtint, Silvertint.

Luxlite Glass Bottom Plate.

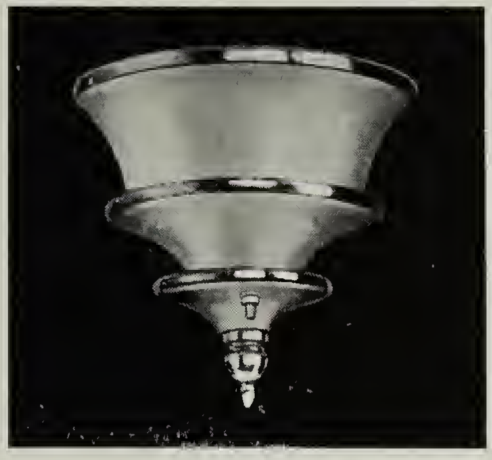


No. 1999 Glass 11" x 3¾" Backplate 3½" x 5"
Extends 5" Overall 5" 2-40W.

No. 2407 Same with Convenience Outlet.

Finish: Chromium—Glass White.

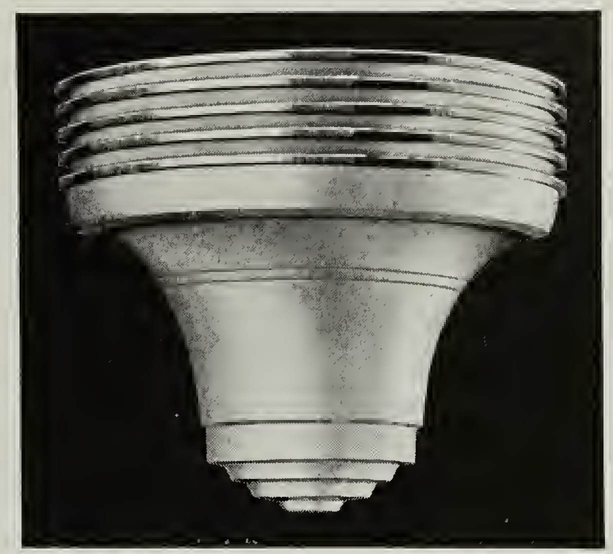
SPECIAL LOCATION LIGHTING


No. 1402

No. 1402 Dia. 9" Extends 4" O.A. 8¼" Watts 60

Finish: Silvertint.

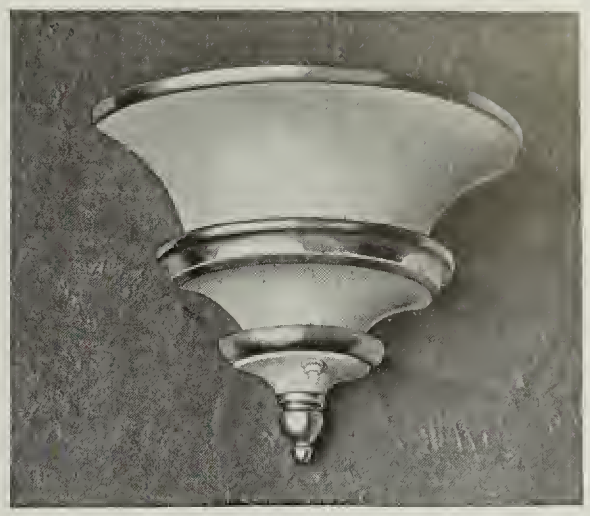
Wired complete with switch.


Luminous Louvred Wall Pocket

No. 1785 Dia. 15½" O.A. 12½" Watts 500

Finish: Silvertint.

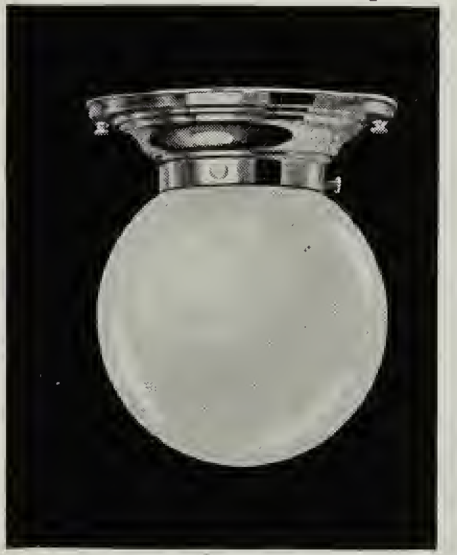
No switch furnished.


No. 8001

No. 8001 Dia. 12" Extends 5¾" O.A. 10" Watts 100

Finish: Silvertint.

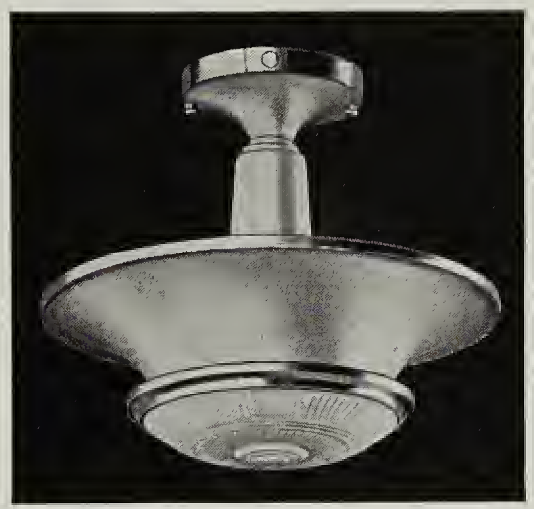
Wired complete with switch.


No. 206 Canopy Dia. 6¼" Depth 7¼"

Glass—6"x3¼" ball.

Wired complete with straps, screws, and knurled nuts.

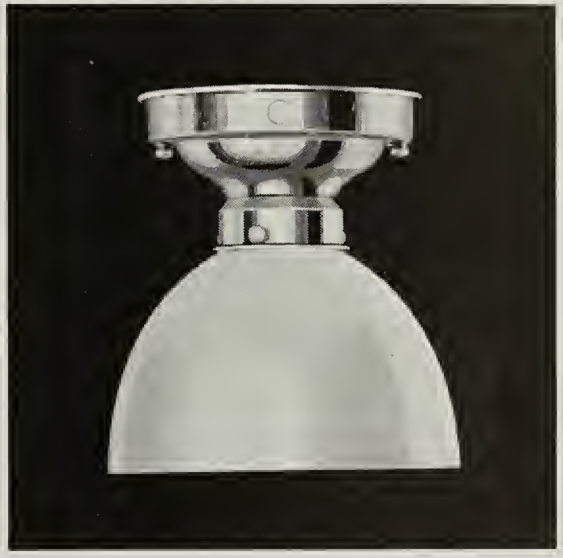
Standard Finish: Statuary Bronze.


No. 1715

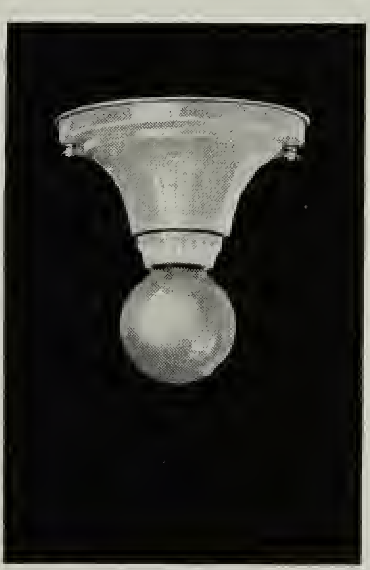
Semi-indirect luminous bowl, white Monax glass bottom plate.

No. 1715 13" Dia. 12" O. A. 150W

Finishes: Chromtint, Durocreme, Durocreme and Silver.

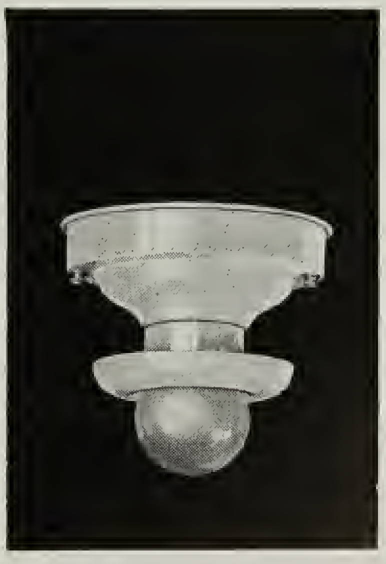

No. 100 Canopy Dia. 5", Fitter 2¼", Glass 6", White Opal Glass Shade—Open Bottom.

Finish: Statuary Bronze, Chromium.


No. 211 Canopy Dia. 5½" Depth 3"

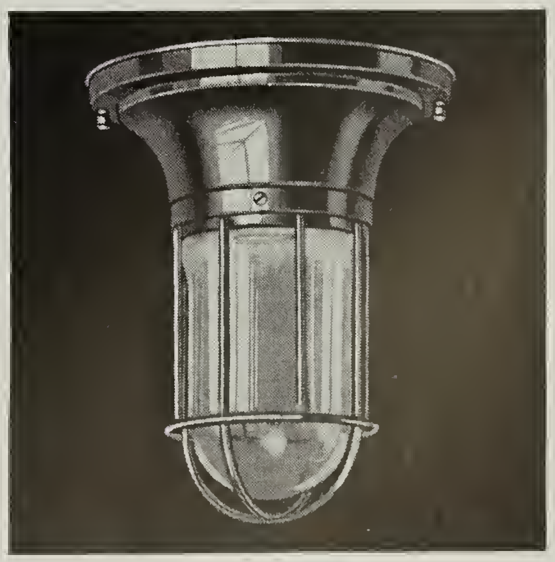
Wired complete with straps, screws, and knurled nuts.

Standard Finish: White Enamel—Statuary Bronze.


No. 10 Canopy Dia. 5½" Depth 3¼"

Complete with straps, screws, and knurled nuts.

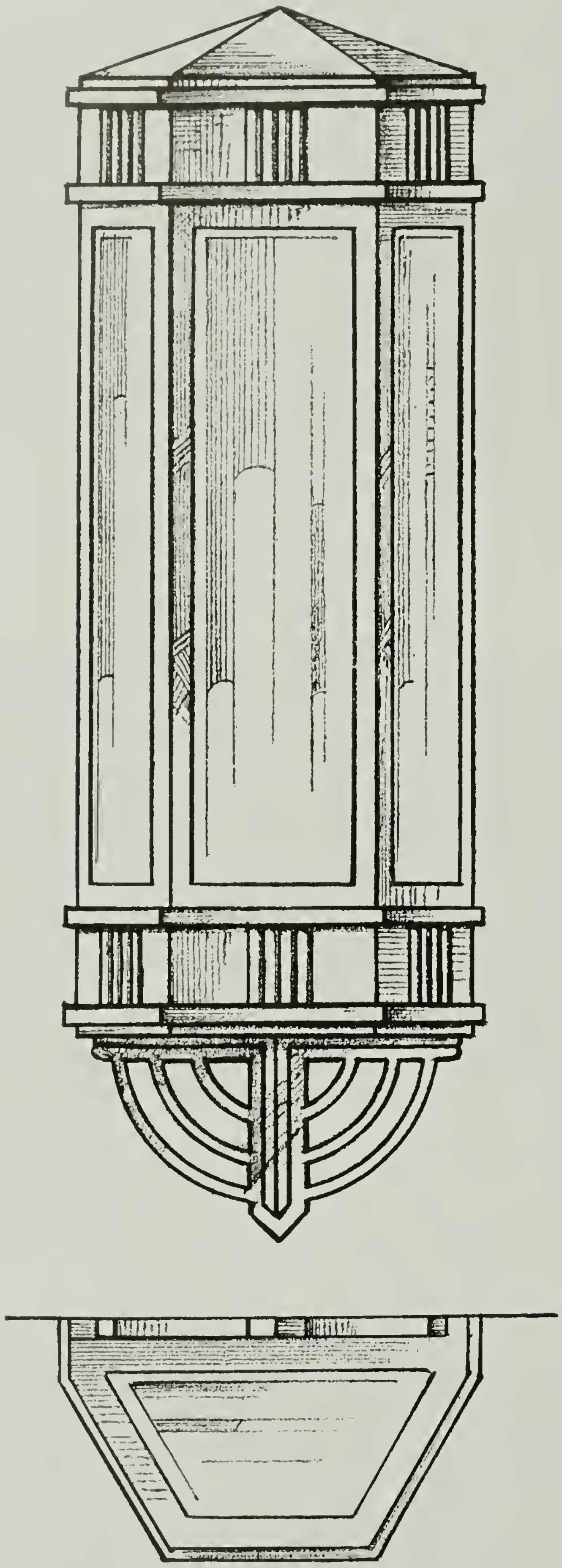
Finish: White Enamel—Statuary Bronze.


Vaporproof Unit

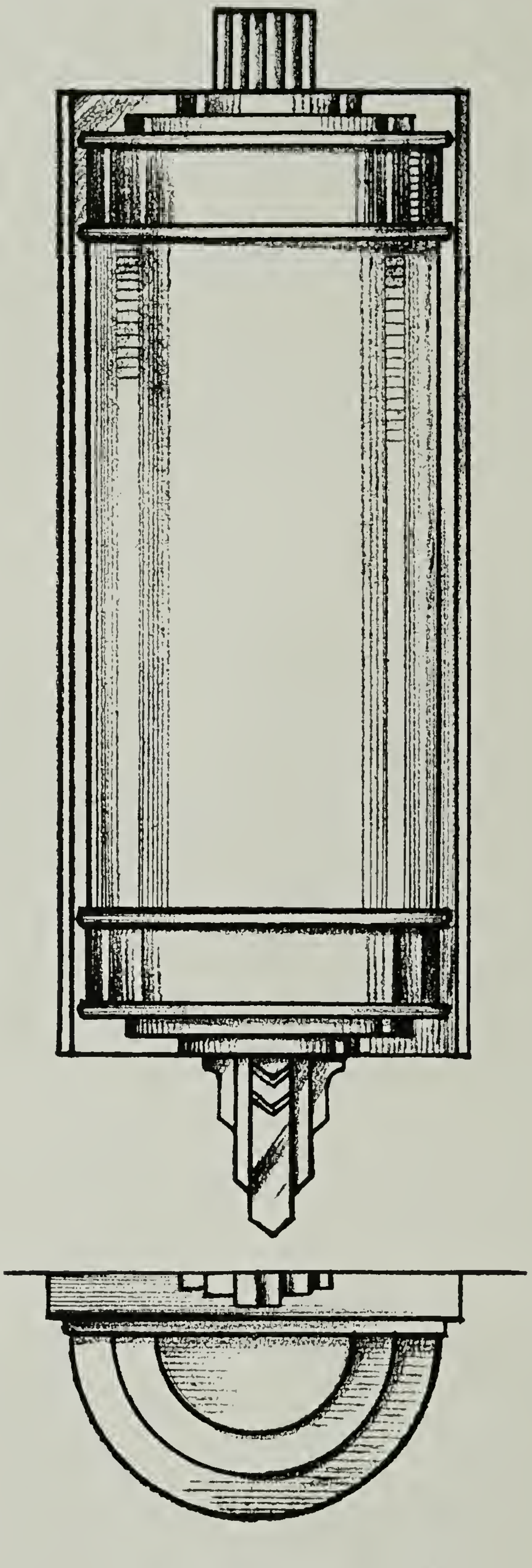
No. 201 60-watt unit—9¼" deep—7½" diam. Canopy—Wired complete.

Standard Finishes: Black—White, Clear Bullet Globe.

EXTERIOR LANTERNS



No. 1868 Wall Bracket



No. 1872 Half Cylinder Pocket

Catalog No.	Lights	Body Dia.	Length O.A.	Extension
1868	2-75W	10″	31″	6″
1869	3-75W	10″	38″	6″

Finish: Standard Bronze.

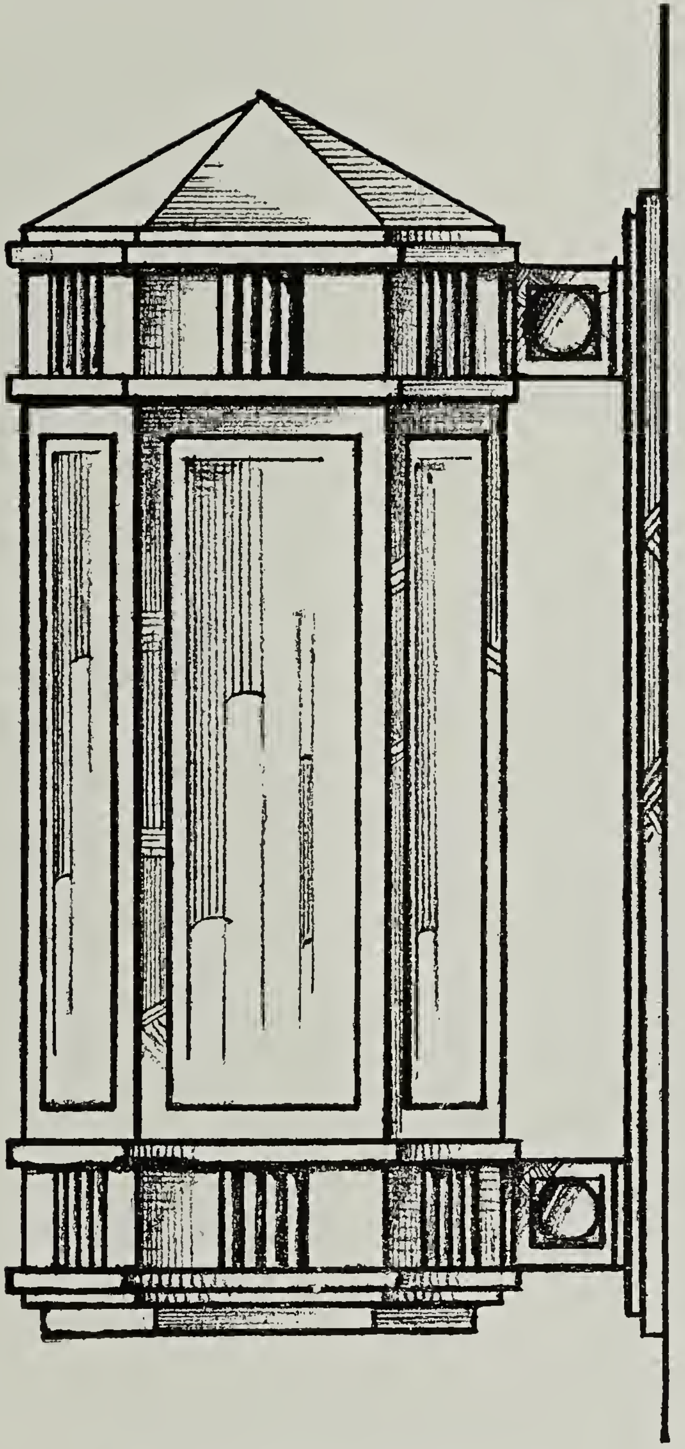
Glass: Flashed Opal.

Catalog No.	Lights	Width	Length O.A.	Extension
1872	2-40W	7¼″	24″	6″x12″ Half Cylinder
1873	2-75W	9¼″	28″	8″x16″ Half Cylinder

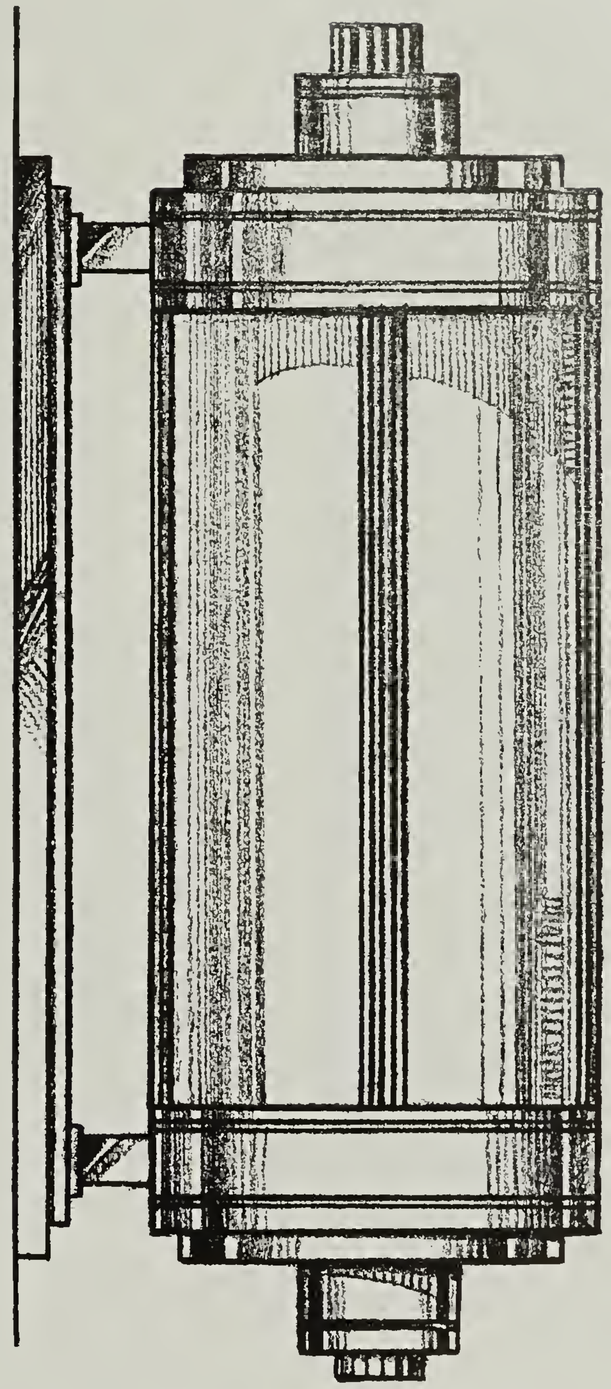
Finish: Standard Bronze.

Glass: Opal.

EXTERIOR LANTERNS



No. 1870 Hexagon Bracket Lantern



No. 1874 Cylinder Bracket Lantern

Catalog No.	Lights	Body Dia.	Length O.A.	Extension	Back Plate Size
1870	1-150W	9"	23½"	11"	4¼"x22"
1871	1-200W	11"	30"	12¾"	4¼"x28"

Finish: Standard Bronze.

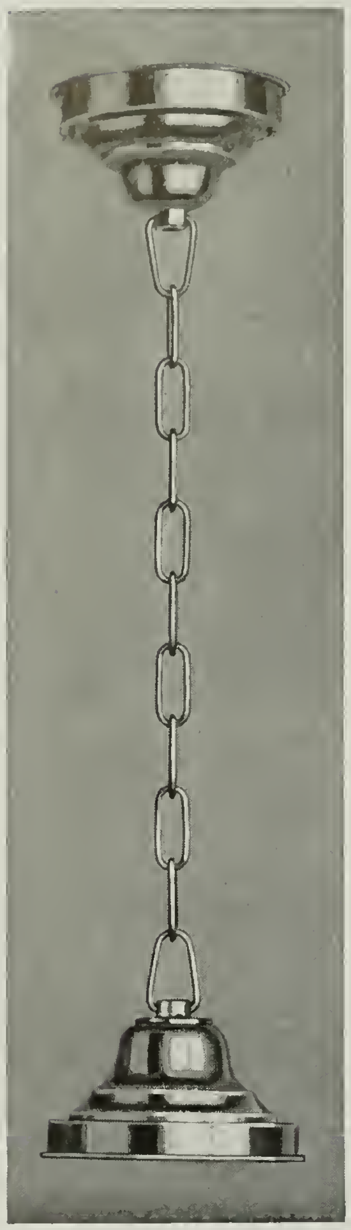
Glass: Flashed Opal.

Catalog No.	Lights	Glass Size	Extension	Back Plate Size
1874	1-100W	6"x16"	9"	4¼"x21"
1875	1-200W	8"x16"	11"	4¼"x21"

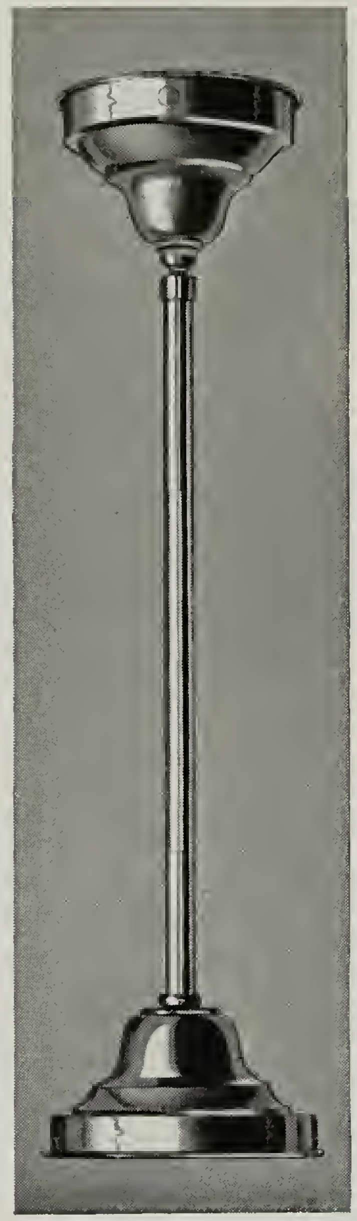
Finish: Standard Bronze.

Glass: Opal.

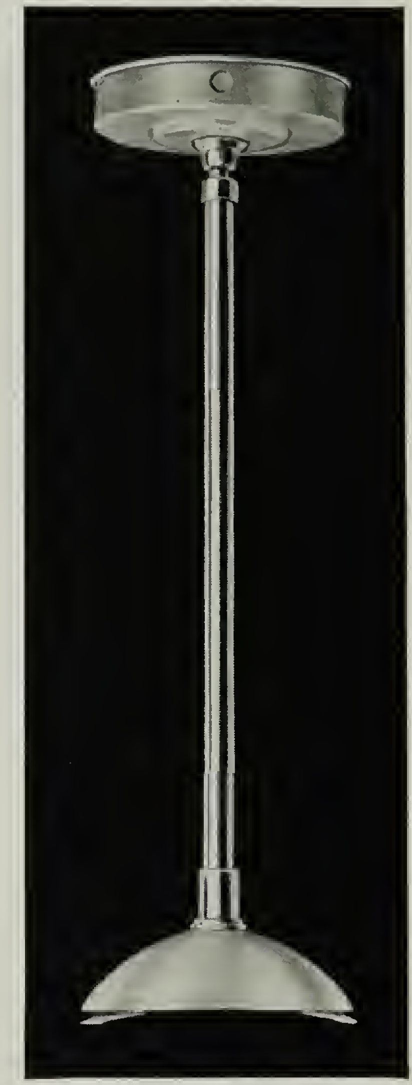
THE SENTINEL LINE



Strap Canopy Pendant
1640—4″ Fitter Med. 30″ O.A.
1641—6″ Fitter Med. 30″ O.A.
1642—6″ Fitter Mog. 30″ O.A.

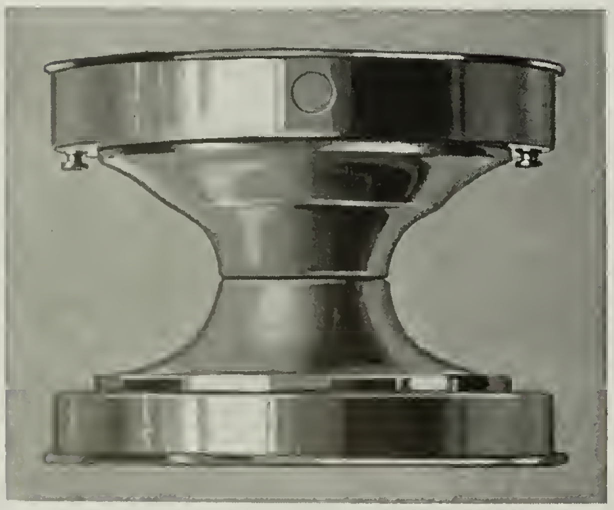


5/8″ Swivel Stem Pendant
1652—4″ Fitter Med. 24″ O.A.
1653—6″ Fitter Med. 24″ O.A.
1654—6″ Fitter Mog. 24″ O.A.



5/8″ Swivel Stem Pendant
2300—6″ Fitter Med. 24″ O.A.
2301—6″ Fitter Mog. 24″ O.A.
2317—6″ Fitter Med. 7″ O.A.
2318—6″ Fitter Mog. 7″ O.A.

The above can be used on lipless glass only



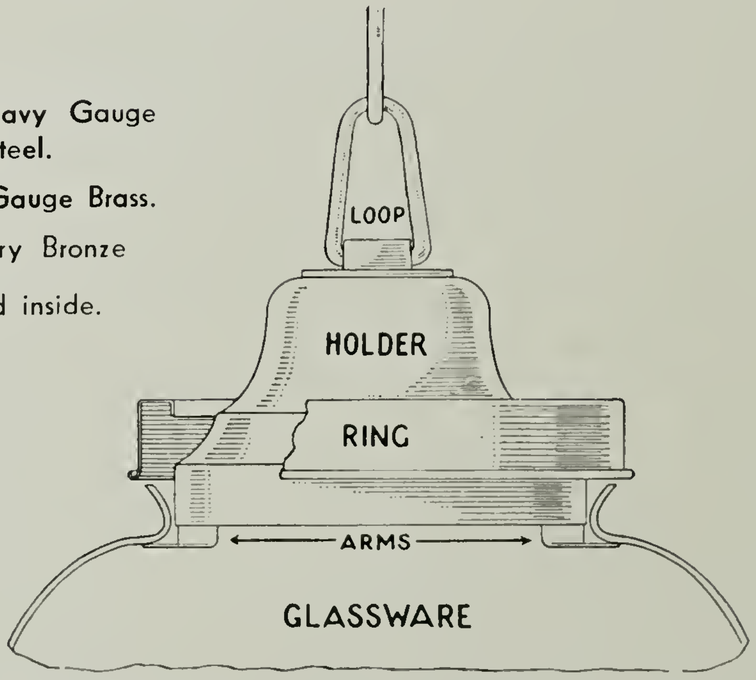
Ceiling Collar
1655—4″ Fitter Med. 4½″ O.A.
1656—6″ Fitter Med. 4¾″ O.A.
1657—6″ Fitter Mog. 4¾″ O.A.

This line made of Heavy Gauge Copper Plated Steel.

Also available in 22 Gauge Brass.

Standard Finish: Statuary Bronze

Holders Aluminized inside.

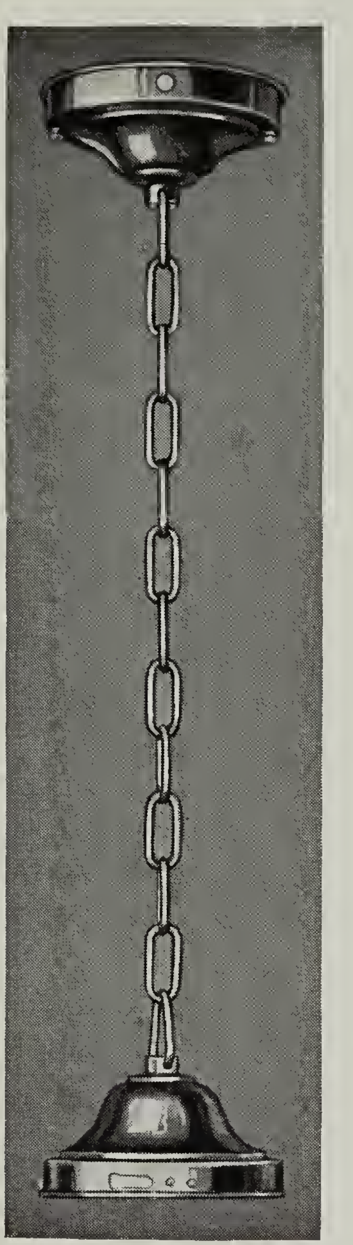


To install glassware, merely slip the glass over the two three-inch arms on holder and lower self-aligning ring which makes the unit absolutely foolproof and dustproof. Nothing mechanical to operate.

EXTERNAL TYPE SAFETY HANGER EQUIPMENT FOR ENCLOSING GLASSWARE

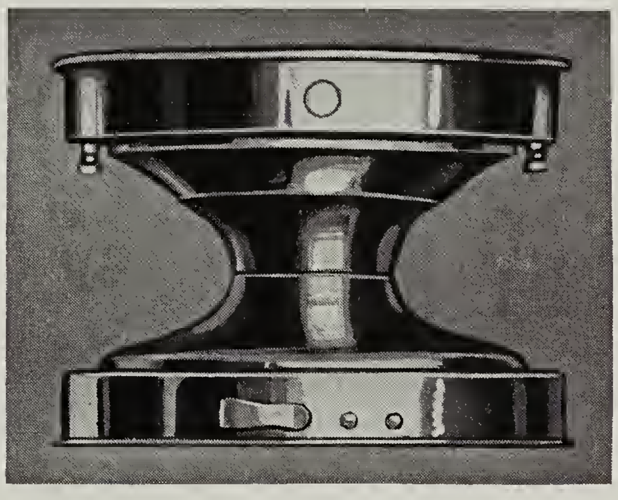
THE ECONOMY LINE

Standard Finish: Statuary Bronze.
Holders aluminized inside.



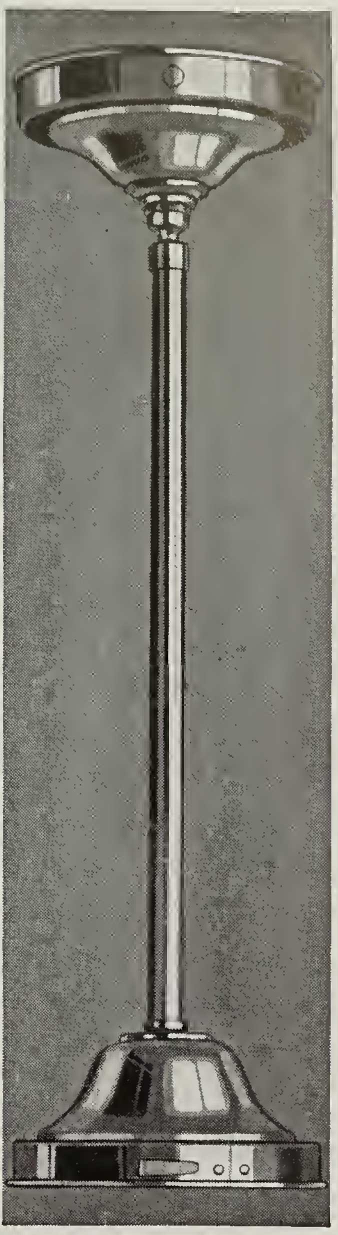
Strap Canopy Pendant

No. 1140 —4″ Fitter Medium 30″ O. A.
No. 1160 —6″ Fitter Medium 30″ O. A.
No. 1160M—6″ Fitter Mogul 30″ O. A.



Ceiling Collar

No. 1240 —4″ Fitter Medium 4½″ O. A.
No. 1260 —6″ Fitter Medium 4¾″ O. A.
No. 1260M—6″ Fitter Mogul 4¾″ O. A.

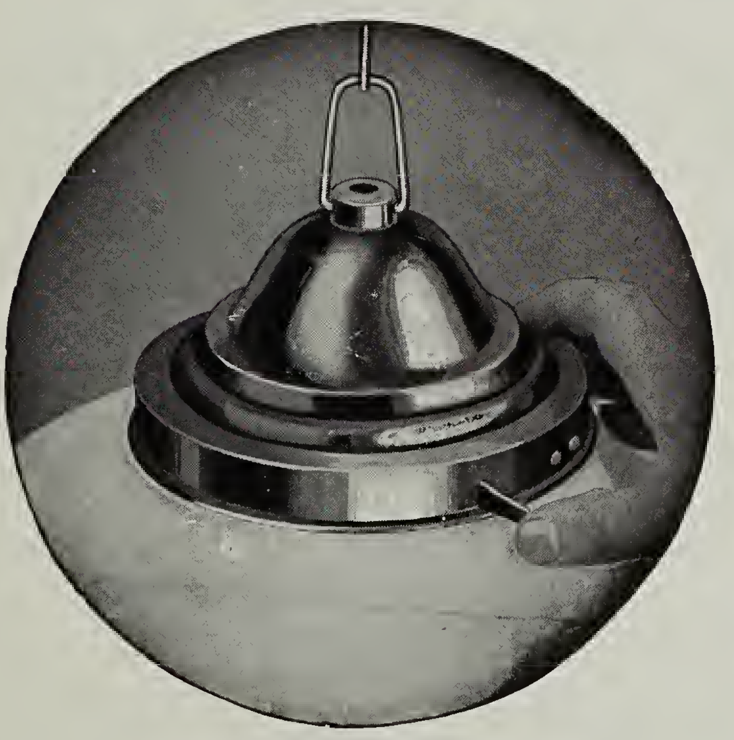


⅝″ Swivel Stem Pendant

1143S —4″ Fitter Medium 24″ O. A.
1163S —6″ Fitter Medium 24″ O. A.
1163SM—6″ Fitter Mogul 24″ O. A.

This line made of heavy gauge copper plated steel.

Also available in 22 gauge brass.

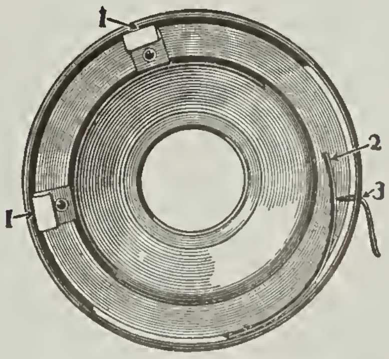


Close lever to lock glass in position.
Simple as clicking a camera.

EXTERNAL CUSHION TYPE ECONOMY LINE SAFETY HOLDERS

A safe, simple and foolproof method for holding enclosing glassware. They are designed to form a cushion around the neck of the glassware that allows for expansion and contraction, eliminating the possibility of globe breakage, yet permitting absolute EASE and SPEED in the installation of glassware.

NOTE THE SIMPLICITY OF PARTS



(1) ½″ x 22 gauge brass stationary arms and
(2) ½″ x 3″—20 gauge spring, acts as a cushion around neck of glass.
(3) Lever 18 gauge brass.

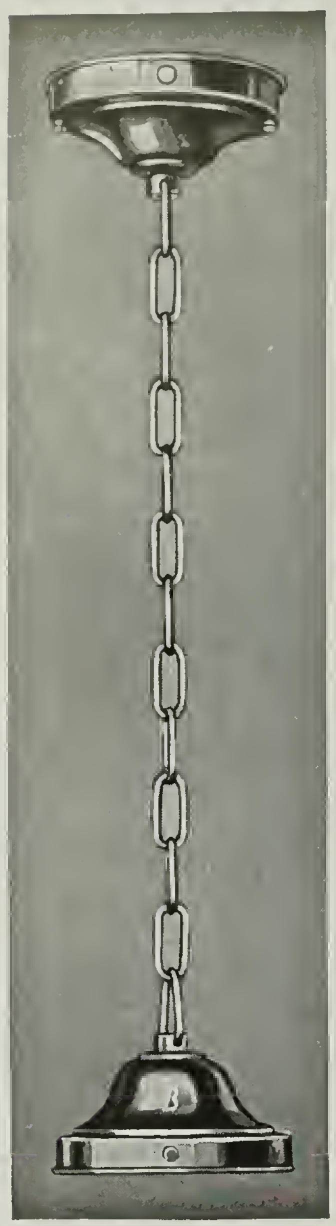
All that is necessary to lock glass in position is to close lever (3) which expands spring (2), simple as clicking a camera.

ONE SCREW CUSHION SUPPORT HANGER EQUIPMENT FOR ENCLOSING GLASSWARE

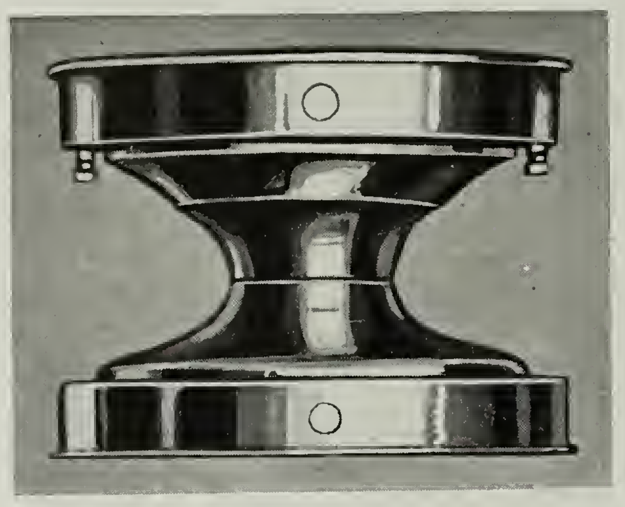
THE MASTER LINE

Master Line Hangers equipped with One-Screw Semi-Safety type holders. This consists of two half-inch twenty-two gauge Brass stationary Arms that allow for expansion of glassware, and one set screw. This feature insures safety and quicker installation of glassware.

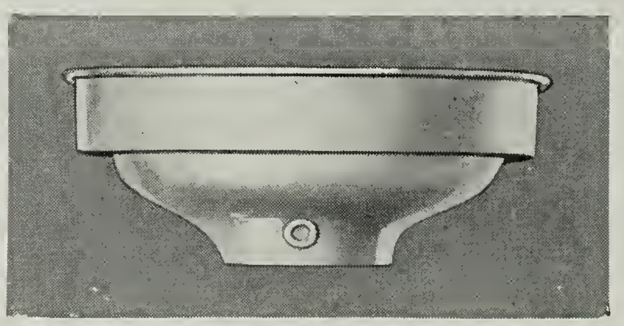
This line made of heavy gauge copper plated steel
Also available in 22 gauge brass.



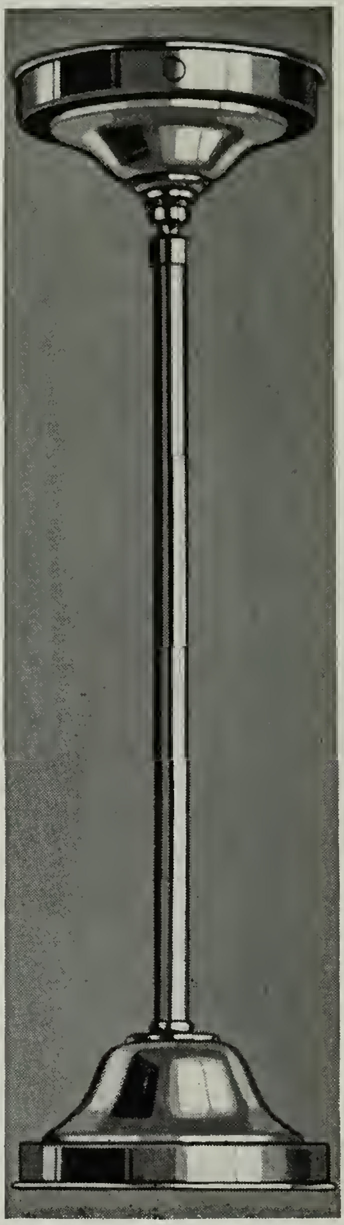
Strap Canopy Pendant
No. 2141—4″ Fitter Medium 30″ O. A.
No. 2161—6″ Fitter Medium 30″ O. A.
No. 2161M—6″ Fitter Mogul 30″ O. A.



Ceiling Collar
No. 2241—4″ Fitter Medium 4½″ O. A.
No. 2261—6″ Fitter Medium 4¾″ O. A.
No. 2261M—6″ Fitter Mogul 4¾″ O. A.

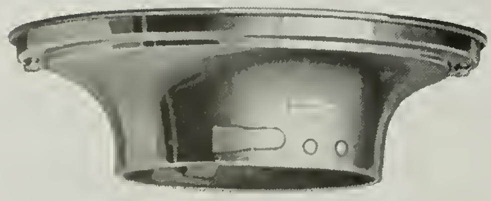


No. 2110 Closet Light is 5¼″ diam. at ceiling and 2⅛″ deep—furnished complete with Keyless Receptacle and Strap, Screws and Nuts.
No. 2109—Furnished with Pull-Chain

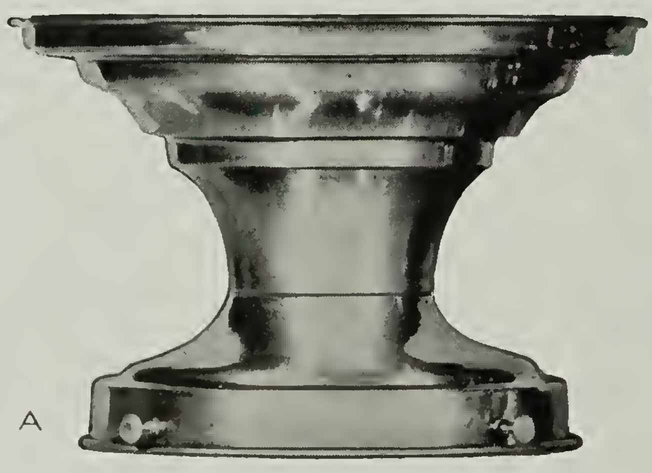


⅝″ Swivel Stem Pendant
2146S —4″ Fitter Medium 24″ O. A.
2166S —6″ Fitter Medium 24″ O. A.
2166SM—6″ Fitter Mogul 24″ O. A.

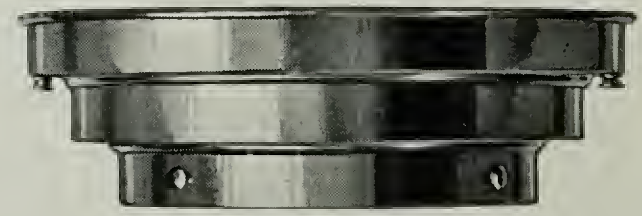
EQUIPMENT BELOW MADE OF 22 GAUGE BRASS



Semi-Safety Ceiling Band
Made of 22 Ga. Brass
No. 47
7½″ Dia. on 4″ Fitter Medium 2¼″ O A
No. 48
9″ Dia. on 6″ Fitter Medium 2¼″ O. A.
Furnished with Two Screws and Two Brass Arms.



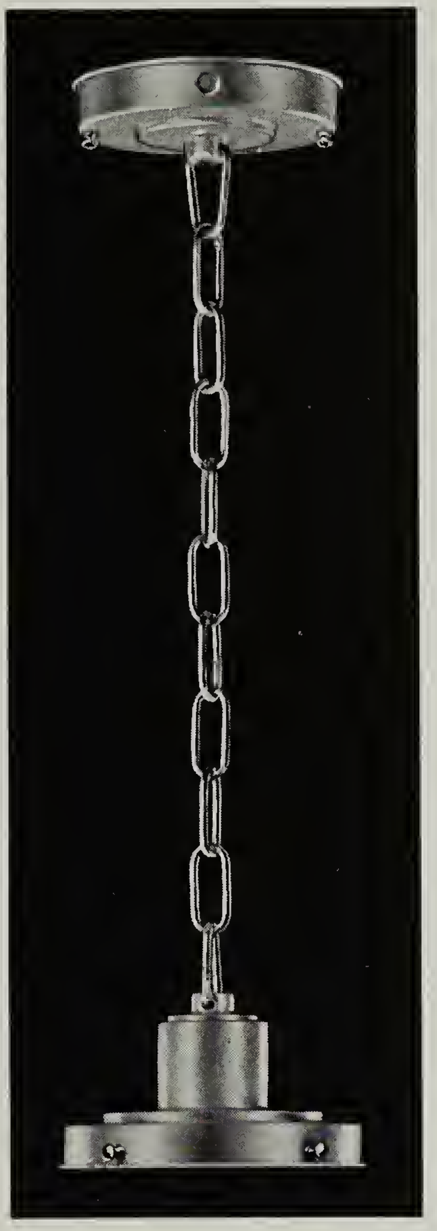
8″ Diam. Canopy Ceiling Collar
Made of 22 Ga. Brass
No. 5042 4″ Fitter Medium 5½″ O. A.
No. 5062 6″ Fitter Medium 5½″ O. A.
No. 5062M 6″ Fitter Mogul 5½″ O. A.
Furnished with Two Screws and Two Brass Arms.



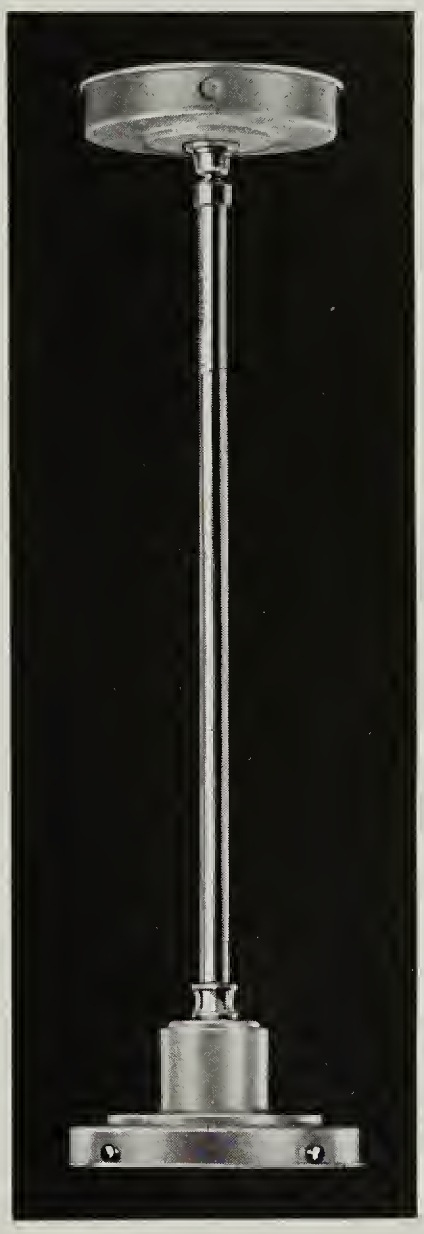
Ceiling Band
Made of 22 Ga. Brass
No. 2004 6″ Dia. on 4″ Fitter Medium 2½″ O. A
No. 2006 8″ Dia. on 6″ Fitter Medium 3″ O. A
Furnished with Two Screws and Two Brass Arms

Standard Finish All Equipment this Page: Statuary Bronze. **All Holders Aluminized Inside.**

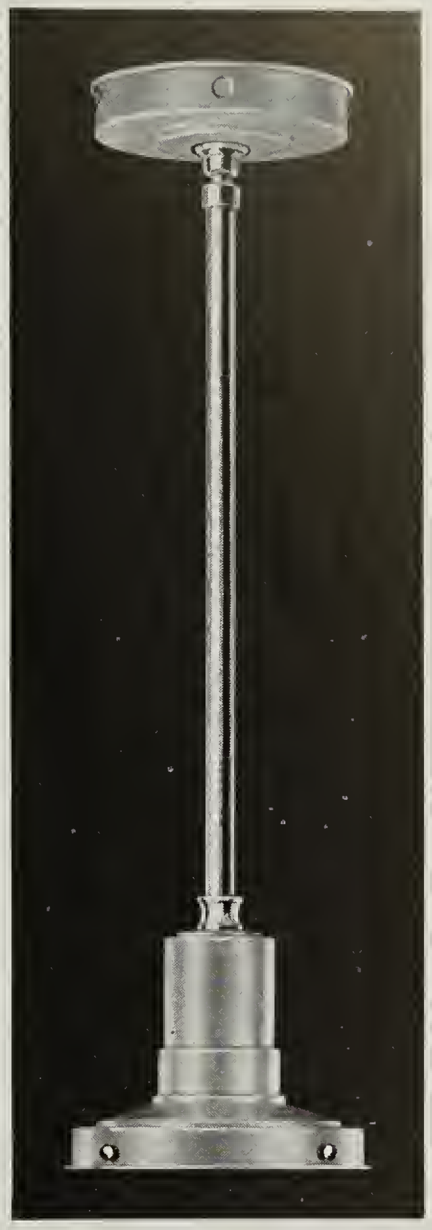
THE MONITOR LINE



Strap Canopy Pendant
2302—4″ Fitter Med. 30″ O. A.
2303—6″ Fitter Med. 30″ O. A.
2304—6″ Fitter Mog. 30″ O. A.



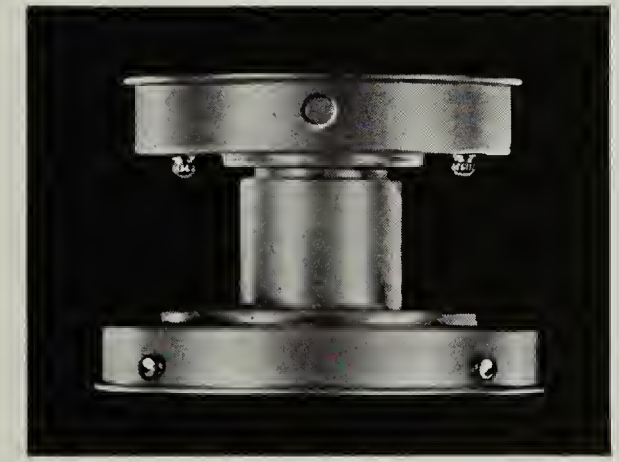
⅝″ Swivel Stem Pendant
2305—4″ Fitter Med. 24″ O. A.
2306—6″ Fitter Med. 24″ O. A.
2307—6″ Fitter Mog. 24″ O. A.



Deep Holder ⅝″ Swivel Stem Pendant
2311—4″ Fitter Med. 24″ O. A.
2312—6″ Fitter Med. 24″ O. A.
2313—6″ Fitter Mog. 24″ O. A.

All Equipment This Page:—Twenty Gauge Aluminum

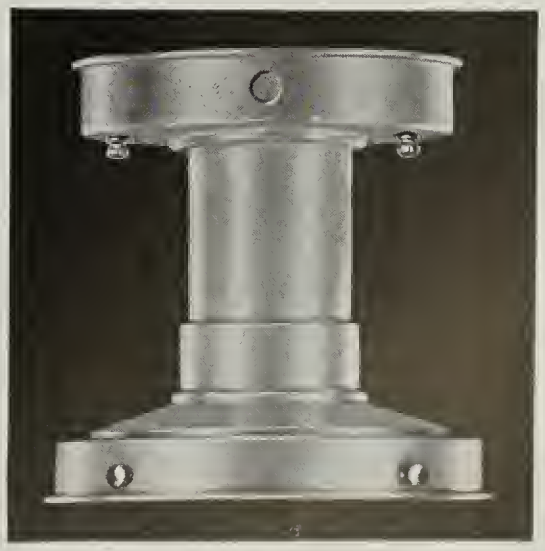
Finish—Etched Aluminum



Ceiling Collar
2308—4″ Fitter Med. 4½″ O. A.
2309—6″ Fitter Med. 4½″ O. A.
2310—6″ Fitter Mog. 4½″ O. A.

Holders have Amlux interior reflecting surface for highest lighting efficiencies.

All hangers listed on this page are equipped with two half-inch twenty-two gauge Brass stationary Arms and two set screws that allow for expansion of glassware.



Deep Fitter Ceiling Collar
2314—4″ Fitter Med. 6½″ O. A.
2315—6″ Fitter Med. 6½″ O. A.
2316—6″ Fitter Mog. 6½″ O. A.

Holders and canopies are made of 20 gauge Aluminum. The stems are ⅝″ finished polished chrome. The chain is 1½″ steel link finished polished cadmium.

ILLUMINATING ENGINEERING NOMENCLATURE

Approved as American Standard by the American Standards Association, prepared under the direction of and issued by THE ILLUMINATING ENGINEERING SOCIETY.

LIGHT: For the purposes of Illuminating Engineering, light is radiant energy evaluated according to its capacity to produce visual sensation.

LUMINOUS FLUX: Luminous Flux is the time rate of flow of light.

LUMEN: The Lumen is the unit of luminous flux. It is equal to the flux through a unit solid angle (steradian) from a uniform point source of one candle, or to the flux on a unit surface all points of which are at a unit distance from a uniform point source of one candle.

LUMINOUS INTENSITY: Luminous intensity, of a source of light, in a given direction, is the solid—angular flux density in the direction in question. Hence, it is the luminous flux on a small surface normal to that direction, divided by the solid angle (in steradians) which the surface subtends at the source of light.

CANDLE: The candle is the unit of luminous intensity. The unit used in the United States is a specified fraction of the average horizontal candlepower of a group of 45 carbon-filament lamps preserved at the Bureau of Standards, when the lamps are operated at specified voltages. This unit is identical, within the limits of uncertainty of measurement, with the International Candle established in 1909 by agreement with the National Standardizing Laboratories of France, Great Britain, and the United States, and adopted in 1921 by the International Commission on Illumination.

CANDLEPOWER: Candlepower is luminous intensity expressed in candles.

ILLUMINATION: Illumination is a density of the luminous flux on a surface; it is the quotient of the flux by the area of the surface when the latter is uniformly illuminated.

FOOTCANDLE: The footcandle is the unit of illumination when the foot is taken as the unit of length. It is the illumination on a one square foot in area on which there is a uniformly distributed flux of one lumen, or the illumination produced at a surface all points of which are at a distance of one foot from a uniform point source of one candle.

BRIGHTNESS: Brightness is the quotient of the luminous intensity of a surface measured in a given direction by the area of this surface projected on a plane perpendicular to the direction considered.

UNITS OF BRIGHTNESS:

Candles Per Unit Area of Surface; the practice recognized internationally is to express brightness in candles per unit area of surface. The brightness of any surface, in a specified direction, can also be expressed in terms of the lumens per unit area from a perfectly diffusing surface of equal brightness.

Lambert: The Lambert is a unit of brightness equal to the uniform brightness of a perfectly diffusing surface emitting or reflecting light at the rate of one lumen per square centimeter.

Foot-Lambert: The foot-lambert is a unit of brightness equal to the average brightness of any surface emitting or reflecting light at the rate of one lumen per square foot, or the uniform brightness of a perfectly diffusing surface emitting or reflecting light at that rate.

Relationship of the Common Units of Brightness:

1 Candle per Square Inch = 452 foot-lamberts.
= .487 lamberts.
= 487 millilamberts.
1 Foot-Lambert = 1 lumen per square foot reflected or emitted.
= .00221 candles per square inch.
= 1.076 millilamberts.
1 Lambert = 1 lumen per square centimeter reflected or emitted.
= 1000 millilamberts.
= 929 foot-lamberts.
= 2.054 candles per square inch.
1 Millilambert = .929 foot-lamberts.
= .002054 candles per square inch.

The candle per square inch and lambert are commonly used for high brightness such as of light sources.

The foot-lambert and millilambert for ordinary illuminated surfaces.

The foot-lambert = incident footcandles x reflection factor, assuming a diffusing surface or medium.

BRIGHTNESS RATIO: Brightness ratio is the ratio of brightness of any two surfaces. When two surfaces are adjacent, the brightness ratio is commonly called the "brightness contrast."

COLOR TEMPERATURE: The color temperature of a source of radiant energy is the temperature at which a complete radiator must be operated to give a color matching that of the source in question.

REFLECTION FACTOR: The reflection factor of a body is the ratio of the light reflected by the body to the incident light.

TRANSMISSION FACTOR: The transmission factor of a body is the ratio of the light transmitted by the body to the incident light.

ABSORPTION FACTOR: The absorption factor of a body is the ratio of the light transmitted by the body to the incident light.

COEFFICIENT OF UTILIZATION: Coefficient of Utilization of an illumination installation on a given plane is a total flux received by that plane divided by the total flux from the lamps illuminating it. When not otherwise specified, the plane of reference is assumed to be a horizontal plane 30 inches from the floor.

★ ★ ★ ★ ★

Characteristics of Glass in Art Metal Equipment

MONAX is a single layer, homogeneous glass.

DENAX is a dense, highly reflecting solid opal glass reflecting the greatest percentage of impinging light yet at the same time transmitting a small amount, both being highly diffused. Has low surface brightness. Has constant reflection factor of 83%. No deterioration. This glass lights just off white more to an ivory tone.

WIDELITE, optical control lense spreading the downward directed light over a large area. The prism design of this lense lowers brightness from average viewing angles. Highly efficient for light control.

FLASHED OPAL, a cased glass composed of two or more layers of different glasses, a clear transparent layer to which is added a layer of opal or opalescent glass. Its characteristic is excellent diffusion and uniform appearance when lighted.

Reflecting Surfaces of Amlux Aluminum

AMLUX finish is a diffuse surface finish that has an exceptionally high reflection factor. It is produced by the processing of the aluminum in exclusive chemical solutions at 210 degrees Fahrenheit. This processing removes any impurities that may be in the aluminum and produces a diffuse or matte finish which is a most desirable metal reflecting surface.

AMLUX will retain its original high reflectivity if a mild soap and water is used to clean the surface whenever it may be necessary. Do not use any abrasive for this tends to destroy the reflecting surface.

Exterior Finishes of Silvertint or Goldtint

Silvertint is a finish closely resembling satin and polished silver.

Goldtint is similar to an exceptionally light bronze finish, resembling Bank Bronze in tone.

Both of these finishes were developed by Art Metal and are found only in Art Metal Lighting Equipment.

THE LUMEN METHOD FOR COMPUTING INTERIOR ILLUMINATION

Foot Candles Resulting from Art Metal Indirect, Semi-Indirect and Direct Indirect Fixtures Or the Lamp Size to Use in the Fixtures Are Quickly Arrived At By the Lumen Method for Computing Interior Illumination.

● Illumination values can be computed arithmetically by using correct factors in the equation. The factors given are determined from results of actual tests and furnished here for future use and reference. Those not given must be determined by the individual doing the job.

Two factors usually not known are:

(1) Size Lamp (Lamp Lumens) required per outlet for the installation.

(2) Footcandles resulting from an installation.

The equations for arriving at the above are as follows:

A. Lamp Lumens Required per Outlet =

$$\frac{\text{Footcandles} \times \text{Area in Sq. Ft. per Out.}}{\text{Coefficient of Util.} \times \text{Main. Factor.}}$$

B. Footcandles =

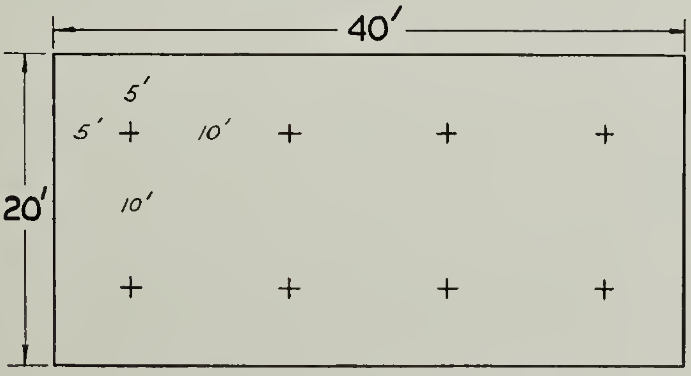
$$\frac{\text{Lamp Lumens} \times \text{Coef. of Util.} \times \text{Main. Factor.}}{\text{Area in Sq. Ft. per Outlet.}}$$

The following factors are necessary and appear in both equations. They will each be described in detail.

I. Area in Square feet per outlet.
II. Size Lamp, or, Lamp Lumens.
III. Coefficient of Utilization.
IV. Footcandles.
V. Maintenance Factor.

I. Area in Square Feet Per Outlet

The arrangement or layout of outlets determines the number of outlets in a room of a given size. Dividing this number into the sq. ft. area of the room determines the area per sq. ft. of each outlet. Assume a room 20 ft. wide by 40 ft. long, with two rows of outlets on ten foot centers, thus 20′ × 40′ ÷ 8 = 100 sq. ft. per outlet.



The following table is a reasonable guide for arriving quickly at spacings, areas and suspensions:

MOUNTING HEIGHTS AND SPACINGS

Ceiling Height	Spacing	Average Area Per Outlet	Suspension*
8	7	50–60	1–1½ Ft.
9	8	60–70	1–1½ Ft.
10	9	70–85	1–2½ Ft.
11	10	85–100	1½–2½ Ft.
12	10–12	100–150	2–3 Ft.
13	10–12	100–150	2–3 Ft.
14	10–13	100–170	2½–4 Ft.
15	10–13	100–170	3–4 Ft.
16	10–13	100–170	3–4 Ft.
18	10–20	100–400	3–4 Ft.
20 & up	18–24	300–500	4–6 Ft.

*When consulting a photometric analysis, if wide distribution is apparent revealing high candlepower in 135° to 155° zones, then 30'' suspension for total and semi-indirect fixtures in rooms of 10-12-14 ft. ceiling height to a max. of 14 ft. outlet spacing, will result in reasonably good uniformity.

II. Size Lamp or Lamp Lumens

This means the rated light output (lumen output) of the lamp and not its physical dimension. The lumen being a unit of measurement of quantity of light reveals to us that 5750 units of light are produced by a 300-watt P.S. 35 Mazda Mogul Base Lamp.

Various size lamps produce certain quantities of lumens . . . the correct lamp to produce the quantity of illumination must be determined. If only a certain size lamp can be used because of certain restrictions, then by applying its lumen output in the equation the footcandles resulting will be revealed.

TABLE OF LAMP LUMENS ★

		Lumens			Lumens
15 Watt	Mazda	I.F. — 150	300 Watt	Medium	I.F. — 5950
25 Watt	Mazda	I.F. — 270	500 Watt	Mogul	I.F. — 10000
40 Watt	Mazda	I.F. — 465	750 Watt	Mogul	I.F. — 15000
60 Watt	Mazda	I.F. — 835	1000 Watt	Mogul	I.F. — 21500
100 Watt	Mazda	I.F. — 1650	1000 Watt	Bipost	I.F. — 19500
150 Watt	Mazda	I.F. — 2600	1500 Watt	Mogul	I.F. — 33500
200 Watt	Mazda	I.F. — 3700	250 Watt	Mercury	I.F. — 7000
300 Watt	Mogul	I.F. — 5700	400 Watt	Mercury	I.F. — 16000

★ Lumens according to published lamp schedule effective August, 1941.

III. Coefficient of Utilization

This is the percentage of light emitted by the lamp that actually gets down to and is useful on the working level. To arrive at this, certain conditions must be taken into consideration.

Room Index: Variations in room proportions affect the use of light. To arrive at some basic figures the General Electric Company by a concerted effort experimented with an adjustable room over a long period of time arriving at the classifications indicated under the heading of Room Index. These have all been carefully and scientifically worked out to be used as tabulated.

Lighting Equipment Characteristics: Efficiency (fixture output in relation to lamp output) and distribution or control of light, are very important. The relation of these to the room proportions determines the amount of light delivered to the working plane. Coefficients of Utilization have been computed from Electrical Testing Laboratory curves of Art Metal fixtures to enable true and individual results.

Interior Finish: Ceilings and walls play an important part by returning to usefulness the light that is directed toward them from lighting fixtures. Our calculations have been made from ceiling reflection factors of 80-50-30 per cent, with walls of 50-30-10 per cent. This covers most conditions from very favorable to poor. Approximate reflection factors of walls and ceilings can be made effectively and easily with the little Light Meter. Place the cell of the Light Meter against the surface to be measured, draw it back slowly about two to four inches until a constant reading is obtained. Note this reading. Now turn the Meter around and place it against the surface with the cell facing away from the surface and take a second reading. Dividing the first reading by the second will give the approximate reflection factor of a diffusely reflecting surface. (Use identical lighting conditions during this test.) This procedure better qualifies a selection from the indicated tables than just a visual appraisal.

IV. Footcandles

In this era of advanced standards of living we have a very definitely low standard of seeing. Recommendations have been established in an effort to raise the levels of seeing illumination. We include a list of generally accepted recommendations for various seeing tasks which are offered merely as a guide of minimum values.

TABLE OF RECOMMENDED FOOTCANDLE VALUES

AUDITORIUMS	5
AUTOMOBILE SHOW-ROOMS	20
BANKS	
Lobby	10
Offices	20
BARBER SHOPS AND BEAUTY PARLORS	20
CHURCHES	
Auditoriums	5
Sunday School Rooms	10
Pulpit or Rostrum	15
CLUB AND LODGE ROOMS	
Lounge and Reading Rooms	20-50
Auditoriums	5
COURTROOMS	10
DRAFTING ROOMS	30-50
HOSPITALS	
Corridors	2
Laboratories	20
Lobby and Reception Room	5
Operating Room	20
Private Rooms and Wards	20
HOTELS	
Lobby	10
Dining Room	5
Kitchen	10
Guest Rooms	10
Corridors	2
Writing Rooms	20-50
LIBRARIES	
Reading Room	20-50
Stack Room	10
NIGHT CLUBS, BARS AND DANCE HALLS	5
OFFICE BUILDINGS	
Bookkeeping, Typing and Accounting	30
CONFERENCE ROOM	
General Meetings	10
Corridors and Stairways	5
DESK WORK	
Intermittent Reading and Writing	20
Studying, Designing, etc	30-50
Reading Blueprints and Plans	30
PROFESSIONAL OFFICES	
Waiting Room	10
Consultation Rooms	20
Operating Offices	20
SCHOOLS	
Auditoriums	10
Classrooms, Library and Offices	20
Corridors and Stairways	5
Drawing Rooms	30-50
Gymnasium (Basketball)	20
Laboratories	15
Manual Training	20
Study Rooms—Desks and Blackboards	20
STORES	
Light Merchandise	20
Dark Merchandise	50-100

V. Maintenance Factor

Inasmuch as there is no such thing as man-made permanence, any man-made object will depreciate, dirt being the enemy of efficiency. Lighting is no exception to this, especially when lack of fixture maintenance is so in evidence. In computing for Illumination values this depreciation of lamps, fixtures, reflecting surfaces, etc., must be allowed for so that desired footcandle levels may be maintained in service as contrasted to initial values. The illumination, maintained in service under average conditions, will be about 70% of the initial value or .70 when expressed as a maintenance factor. If conditions are above average this value may be higher, or conditions may be the reverse making this value lower. Consideration has been given these conditions in the following tabulations.

PROCEDURE FOR COMPUTING ILLUMINATION VALUES

The essential parts of the equation have been briefly discussed with enough informative data to allow for an understanding of the factors of the equation. To illustrate the use of this follow the working of a typical example.

> "The room to be lighted is a school classroom, 20 ft. wide, 40 ft. long. Two rows of fixtures on 10 ft. centers. The ceiling is 12 ft. high. Ceiling paint, flat white good clean condition . . . sidewalls, light buff good clean condition. 25 footcandles are required. What size lamps per outlet are needed to do the job? The Plasticlite No. 1860 has been selected as the type unit."

The equation for this problem—

$$\text{Lamp Lumens} = \frac{\text{Footcandles} \times \text{Area in Sq. Ft. per Outlet.}}{\text{Coefficient of Utilization} \times \text{Maintenance Factor.}}$$

Step No. 1—Footcandles have been determined at 25. Area in Sq. Ft. per Outlet = 800 Sq. Ft. ÷ 8 Outlets or 100 Sq. Ft. per Outlet.

Step No. 2—Coefficient of Utilization. From room index table refer to column under 12 ft. ceiling height in semi-indirect band, move down to 20 ft. room width space and in the row indicated by heavy type for 30 to 42 ft. room length, find letter "E". Now refer to next table calculated specifically for the 1860 Plasticlite fixture. Under room index find E, having determined paint conditions as very favorable using the 80% ceiling reflection factor and 50% wall reflection factor, move down this column to E and find .39—this is the Coefficient of Utilization.

Step No. 3—Maintenance Factor . . . Average determined for this particular fixture is .65.

Step No. 4—Equation now stands ready for computing viz.:

$$\text{Lamp Lumens (?)} = \frac{\text{Footcandles (25)} \times \text{Area in Sq. Ft. per Outlet (100)}}{\text{Coef. of Util. (.39)} \times \text{Main. Fac.(.65)}}$$

$$= \frac{2500}{.2535} = 9861 \text{ lumens.}$$

A 500-watt I.F. general service P.S. 40 lamp has output of 10,000 lumens and therefore would be recommended.

Using the same identical problem with a slight change the other equation can be used viz.:

> "The room to be lighted is a school classroom, 20 ft. wide, 40 ft. long. Two rows of fixtures on 10 ft. centers. The ceiling is 12 ft. high. Ceiling paint, flat white good

clean condition . . . side walls, light buff good clean condition. The Plasticlite No. 1860 has been selected as the type unit and 500-watt lamps per unit are to be used. What will be the resulting footcandles?"

The equation for this problem—

$$\text{Footcandles (?)} = \frac{\text{Lamp Lumens} \times \text{Coef. of Util.} \times \text{Main. Fac.}}{\text{Area Sq. Ft. per Lamp}}$$

Fill in the equation exactly as before, however, knowing that 500-watt lamps are to be used, refer to Table of Lamp Lumens which specifies Lumen output for 500-watt lamp—thus the equation ready for computing is:

$$\text{Footcandles} = \frac{10{,}000 \times .39 \times .65}{100} = \frac{2535}{100} \text{ or 25 F.C.}$$

TABLE OF ROOM INDEX

(Classification of rooms according to their proportions)

		CEILING HEIGHT—FEET										
For Semi-Indirect and Indirect Lighting		9 and 9½	10 to 11½	12 to 13½	14 to 16½	17 to 20	21 to 24	25 to 30	31 to 36	37 to 50		
		MOUNTING HEIGHT ABOVE FLOOR—FEET										
For Direct and Semi-Direct Lighting		7 and 7½	8 and 8½	9 and 9½	10 to 11½	12 to 13½	14 to 16½	17 to 20	21 to 24	25 to 30	31 to 36	37 to 50
Room Width (Feet)	Room Length (Feet)	ROOM INDEX										
9 (8½–9)	8-10	H	I	J	J							
	10-14	H	I	I	J							
	14-20	G	H	I	J	J						
	20-30	G	G	H	I	J	J					
	30-42	F	G	H	I	J	J	J				
	42-up	E	F	G	H	I	J	J				
10 (9½–10½)	10-14	G	H	I	J	J						
	14-20	G	H	I	J	J	J					
	20-30	F	G	H	I	J	J					
	30-42	F	G	G	H	I	J	J				
	42-60	E	F	G	H	I	J	J				
	60-up	E	F	F	H	H	I	J				
12 (11–12½)	10-14	G	H	I	I	J	J					
	14-20	F	G	H	I	J	J					
	20-30	F	G	G	H	I	J	J				
	30-42	E	F	G	H	I	J	J				
	42-60	E	F	F	G	H	I	J				
	60-up	E	E	F	G	H	I	J				
14 (13–15½)	14-20	F	G	H	H	I	J	J				
	20-30	E	F	G	H	I	J	J				
	30-42	E	F	F	G	H	I	J	J			
	42-60	E	E	F	F	H	I	J	J	J		
	60-90	D	E	E	F	G	H	J	J	J		
	90-up	D	E	E	F	F	G	I	J	J		
17 (16–18½)	14-20	E	F	G	H	I	J	J				
	20-30	E	F	F	G	H	I	J				
	30-42	D	E	F	G	H	H	J	J	J		
	42-60	D	E	E	F	G	G	I	J	J	J	
	60-110	D	E	E	F	G	G	I	J	J	J	
	110-up	C	D	E	E	F	G	H	I	J	J	
20 (19–21½)	20-30	D	E	F	G	H	I	J	J			
	30-42	D	E	E	F	G	H	I	J	J		
	42-60	D	D	E	E	F	G	I	J	J	J	
	60-90	C	D	E	E	F	G	H	J	J	J	
	90-140	C	D	D	E	F	F	H	I	I	J	J
	140-up	C	D	D	E	F	F	H	H	I	J	J
24 (22–26)	20-30	D	E	E	F	G	H	I	J	J		
	30-42	C	D	E	F	G	G	I	J	J		
	42-60	C	D	D	E	F	G	H	I	J	J	
	60-90	C	D	D	E	F	F	H	I	J	J	J
	90-140	C	C	D	E	E	F	G	H	I	J	J
	140-up	C	C	D	E	E	F	G	H	I	I	J
30 (27–33)	30-42	C	D	D	E	F	G	H	I	J	J	
	42-60	C	C	D	D	F	F	H	H	I	J	
	60-90	B	C	C	D	E	F	G	H	I	J	J
	90-140	B	C	C	D	E	E	F	G	H	I	J
	140-180	B	C	C	D	E	E	F	G	H	I	J
	180-up	B	C	C	D	E	E	F	G	H	I	J
36 (34–39)	30-42	B	C	D	E	F	F	H	I	I	J	
	42-60	B	C	C	D	E	F	G	H	I	J	J
	60-90	A	C	C	C	E	E	F	H	H	J	J
	90-140	A	B	C	C	D	E	F	G	H	I	J
	140-200	A	B	C	C	D	E	F	F	G	H	I
	200-up	A	B	C	C	D	E	F	F	G	H	I
42 (40–45)	42-60	A	B	C	C	E	F	G	H	I	I	J
	60-90	A	B	B	C	D	E	F	G	H	I	J
	90-140	A	B	B	C	D	D	E	F	G	H	J
	140-200	A	A	B	C	D	D	E	F	G	H	I
	200-up	A	A	B	C	D	D	E	F	F	G	I
50 (46–55)	42-60	A	A	B	C	D	E	F	G	H	I	J
	60-90	A	A	B	C	C	D	F	F	G	H	J
	90-140	A	A	A	C	C	D	E	F	F	G	I
	140-200	A	A	A	C	C	D	E	E	F	G	I
	200-up	A	A	A	C	C	D	E	E	F	G	H
60 (56–67)	60-90	A	A	A	B	C	D	E	F	G	H	I
	90-140	A	A	A	B	C	C	D	E	F	G	H
	140-200	A	A	A	B	C	C	D	E	E	F	H
	200-up	A	A	A	B	C	C	D	E	E	F	H
75 (68–90)	60-90	A	A	A	A	B	C	D	E	F	G	I
	90-140	A	A	A	A	B	C	D	E	F	F	H
	140-200	A	A	A	A	B	B	C	D	E	F	G
	200-up	A	A	A	A	B	B	C	D	E	F	G
90 or more	60-90	A	A	A	A	B	C	D	E	F	G	H
	90-140	A	A	A	A	A	B	C	D	E	F	G
	140-200	A	A	A	A	A	B	C	D	E	F	G
	200-up	A	A	A	A	A	B	C	C	D	E	F

TABLE OF COEFFICIENTS OF UTILIZATION (Of the Art Metal Fluorescent Units)

Art Metal Standard Listed Lighting Equipment Catalog Number	Ceiling	75%			50%			30%		Maintenance Factors
	Walls	50%	30%	10%	50%	30%	10%	30%	10%	
	Room Index	COEFFICIENTS OF UTILIZATION								
Louvrlux ★	J	.26	.23	.21	.21	.22	.20	.20	.18	
2410	I	.32	.29	.28	.29	.27	.25	.25	.24	
2411	H	.36	.33	.31	.32	.30	.28	.28	.27	
2413	G	.39	.36	.34	.35	.33	.31	.30	.29	
2414	F	.42	.39	.36	.37	.35	.33	.32	.31	.85 Clean
	E	.45	.42	.40	.40	.38	.36	.34	.33	.75 Av.
	D	.48	.45	.43	.43	.40	.39	.37	.36	
	C	.50	.47	.44	.44	.42	.40	.38	.37	
	B	.52	.49	.47	.46	.44	.43	.39	.38	
	A	.54	.51	.50	.47	.45	.44	.41	.39	
Equalux ★	J	.23	.20	.18	.21	.18	.16	.16	.15	
2415	I	.29	.26	.24	.26	.23	.21	.21	.19	
2416	H	.32	.29	.27	.28	.26	.24	.23	.22	
2418	G	.36	.32	.30	.31	.29	.27	.25	.24	
2419	F	.38	.35	.32	.33	.30	.29	.27	.26	.75 Clean
	E	.41	.39	.36	.36	.34	.32	.30	.28	.65 Av.
	D	.45	.42	.38	.39	.36	.35	.32	.31	
	C	.47	.44	.41	.40	.38	.36	.33	.32	
	B	.50	.47	.45	.42	.40	.39	.35	.34	
	A	.52	.49	.47	.44	.42	.40	.36	.35	
Panelite	J	.22	.19	.17	.21	.18	.17	.18	.17	
2512L	I	.26	.24	.22	.25	.23	.22	.23	.21	
2512F	H	.29	.26	.25	.28	.26	.24	.25	.24	
	G	.31	.29	.27	.30	.28	.26	.27	.26	
	F	.34	.31	.29	.32	.30	.28	.29	.28	.85 Clean
	E	.36	.34	.32	.35	.33	.31	.32	.30	.75 Av.
	D	.39	.36	.34	.37	.35	.33	.34	.33	
	C	.41	.38	.35	.39	.36	.34	.35	.34	
	B	.43	.40	.38	.40	.38	.36	.37	.36	
	A	.44	.41	.39	.41	.39	.37	.38	.37	

★For the coefficients of Utilization for the Louvrlux Continuous System of Illumination or the Equalux Continuous System of Illumination, refer to the corresponding Louvrlux or Equalux unit.

TABLE OF COEFFICIENTS OF UTILIZATION

(Computed from Electrical Testing Laboratory curves of Art Metal equipment.)
Indirect • Direct-Indirect • Semi-Indirect Equipment.

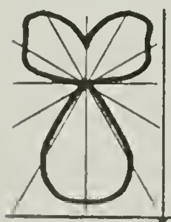
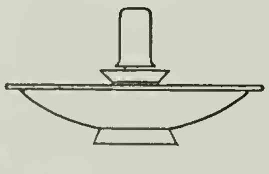
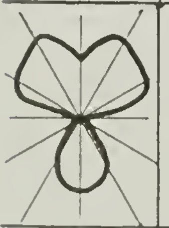
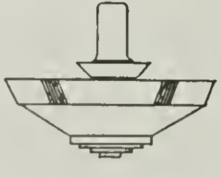
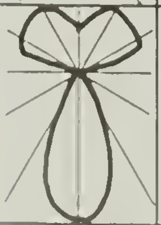
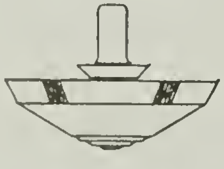
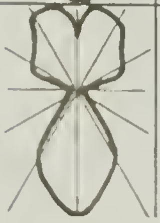
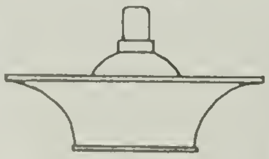
Type of Light Distribution	Art Metal Standard Listed Catalog Lighting Equipment	Ceiling	80%			50%			30%		Maintenance Factors	SUGGESTED USES
		Walls	50%	30%	10%	50%	30%	10%	30%	10%		
		Room Index	COEFFICIENTS OF UTILIZATION									
	No. 1930 	J	.22	.17	.15	.17	.14	.12	.11	.10	.75 Clean .65 AV. .60 Dirty	GENERAL STORES DISPLAY ROOMS SPECIALTY SHOPS AUTOMOBILE SHOW ROOMS JEWELRY STORES
		I	.28	.23	.21	.21	.18	.16	.15	.13		
		H	.31	.27	.25	.24	.21	.19	.17	.15		
		G	.35	.31	.27	.27	.24	.22	.19	.18		
		F	.38	.33	.30	.29	.26	.24	.20	.19		
		E	.43	.38	.35	.32	.29	.27	.23	.22		
		D	.46	.42	.39	.35	.32	.30	.25	.24		
		C	.49	.45	.42	.36	.34	.32	.26	.25		
		B	.53	.49	.46	.39	.37	.35	.29	.27		
		A	.55	.52	.49	.41	.39	.37	.30	.29		
	No. 1944 	J	.20	.15	.13	.15	.12	.10	.09	.07	.75 Clean .65 AV. .60 Dirty	GENERAL STORES DISPLAY ROOMS SUPER-MARKETS SMALL ASSEMBLY ROOMS JEWELRY STORES
		I	.26	.21	.18	.19	.16	.14	.12	.10		
		H	.29	.25	.22	.21	.18	.16	.14	.12		
		G	.34	.29	.25	.25	.21	.19	.16	.14		
		F	.36	.31	.28	.27	.23	.21	.17	.16		
		E	.41	.36	.33	.30	.26	.24	20	.18		
		D	.45	.40	36	.32	.29	.27	.22	.21		
		C	.48	43	.40	.34	.31	.29	.23	.22		
		B	.52	.48	.45	.37	.35	.33	.25	.24		
		A	.54	.51	.47	.39	.36	.35	.27	.25		
	No. 1943 	J	.21	.16	14	.16	.13	.11	.10	.08	.75 Clean .65 AV. .60 Dirty	GENERAL STORES DISPLAY ROOMS SUPER-MARKETS SMALL ASSEMBLY ROOMS JEWELRY STORES
		I	.27	.22	.19	.21	.17	.15	.13	.12		
		H	.31	.26	.23	.23	.20	.17	.16	.14		
		G	.35	.30	.26	.26	.23	.20	.17	.16		
		F	.38	.33	.29	.29	.25	.22	.19	.17		
		E	.43	.38	.34	.32	.28	.26	.22	.20		
		D	.47	.42	.38	.34	.31	.29	.24	.23		
		C	.50	.45	.41	.36	.33	.31	.26	.24		
		B	.54	.50	.47	.39	.37	.35	.28	.27		
		A	.57	.53	.49	.42	.39	.37	.30	.28		
	No. 1946 	J	.19	.14	.12	.15	.12	.10	.10	.08	.75 Clean .70 AV. .65 Dirty	GENERAL STORES DISPLAY ROOMS SUPER-MARKETS ARCADES JEWELRY STORES
		I	.24	.20	.17	.20	.16	.14	.14	.12		
		H	.27	.23	.20	.22	.19	17	.16	.14		
		G	.30	.23	.23	.25	.21	.19	.18	.16		
		F	.33	.26	.25	.27	.23	.21	.19	.18		
		E	.37	.29	.30	.30	.26	.24	.22	.21		
		D	.40	.36	.33	.32	.29	.27	.25	.23		
		C	.43	.39	.35	.34	.31	.29	.26	.25		
		B	.46	.43	.40	.37	.34	.32	.28	.27		
		A	.48	.45	.42	.39	.36	.34	.30	.28		

TABLE OF COEFFICIENTS OF UTILIZATION (Computed from Electrical Testing Laboratory curves of Art Metal equipment.)

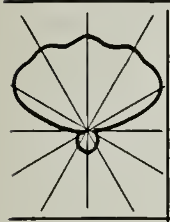
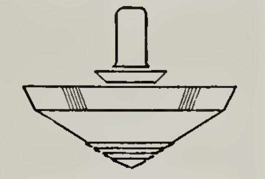
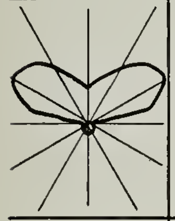
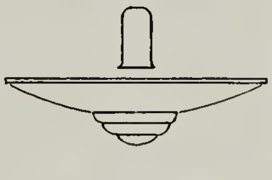
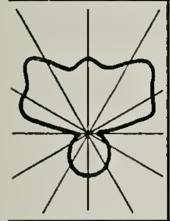
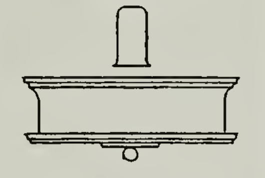
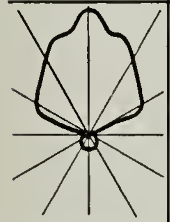
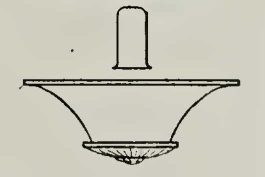
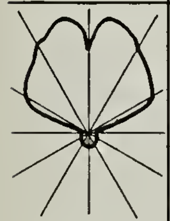
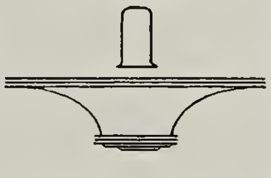
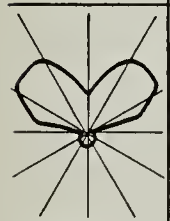
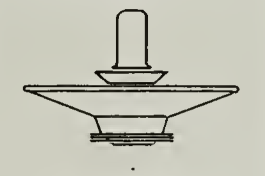
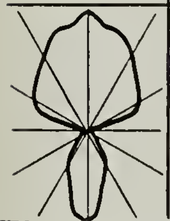
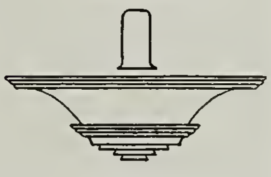
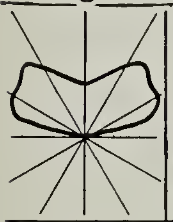
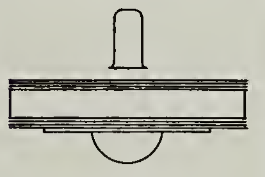
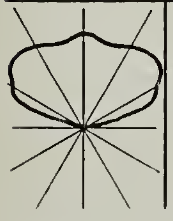
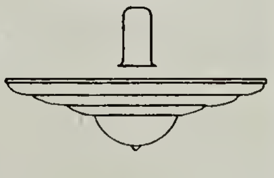
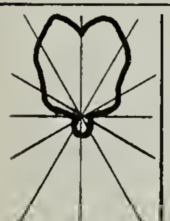
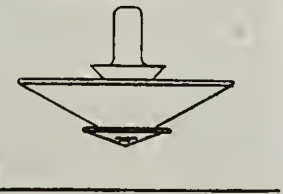
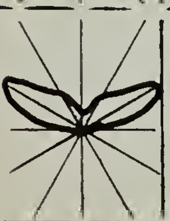
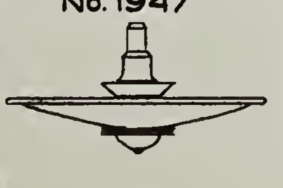
Type of Light Distribution	Art Metal Standard Listed Catalog Lighting Equipment	Ceiling	80%			50%			30%		Maintenance Factors	SUGGESTED USES
		Walls	50%	30%	10%	50%	30%	10%	30%	10%		
		Room Index	COEFFICIENTS OF UTILIZATION									
	No. 1860 	J	.18	.14	.12	.12	.10	.08	.06	.05	.75 Clean .65 AV. .60 Dirty	SCHOOL CLASSROOMS GENERAL OFFICES GENERAL STORES (SMALL)
		I	.23	.19	.16	.16	.13	.11	.09	.08		
		H	.27	.22	.20	.18	.15	.13	.10	.09		
		G	.31	.26	.22	.21	.18	.16	.12	.11		
		F	.33	.28	.25	.23	.20	.18	.13	.12		
		E	.39	.33	.30	.26	.22	.20	.15	.14		
		D	.42	.37	.33	.28	.25	.23	.17	.16		
		C	.45	.40	.37	.30	.27	.25	.18	.17		
		B	.49	.45	.42	.32	.30	.28	.20	.19		
		A	.51	.48	.44	.35	.32	.30	.22	.20		
	No. 1782S 	J	.16	12	.10	.10	.08	.07	.05	.04	.70 Clean .65 AV. .60 Dirty	GENERAL OFFICES SPECIALTY SHOPS LOBBIES — BUILDING HOTEL CHURCHES
		I	.20	.16	.14	.13	.11	.09	.06	.05		
		H	.23	.19	.17	.15	.12	.11	.08	.06		
		G	.27	.23	.19	.18	.15	.13	.09	.08		
		F	.30	.25	.22	.19	.16	.14	.10	.09		
		E	.34	.29	.26	.22	.19	.17	.11	.10		
		D	.37	.33	.29	.23	.21	.19	.13	.12		
		C	.40	.36	.32	.25	.23	.21	.14	.13		
		B	.44	.40	.37	.27	.26	.24	.16	.15		
		A	.46	.43	.39	.30	.27	.26	.17	.16		
	No. 1830S 	J	.17	.13	.11	.12	.10	.08	.07	.06	.65 Clean .60 AV. .55 Dirty	SPECIALTY SHOPS EXECUTIVE OFFICES LOBBIES — BUILDING HOTEL THEATER LOUNGES
		I	.22	.18	.15	.15	.13	.11	.09	.08		
		H	.25	.21	.19	.17	.14	.13	.11	.09		
		G	.28	.24	.21	.20	.17	.15	.12	.11		
		F	.30	.26	.23	.22	.19	.17	.13	.12		
		E	.35	.31	.28	.24	.21	.20	.15	.14		
		D	.38	.34	.31	.26	.24	.22	.17	.16		
		C	.40	.36	.33	.27	.25	.24	.18	.17		
		B	.44	.41	.38	.30	.28	.26	.19	.18		
		A	.46	.43	.40	.32	.29	.28	.21	.19		
	No. 1732S 	J	.15	.12	.10	.10	.08	.07	.05	.04	.65 Clean .60 AV. .55 Dirty	GENERAL STORES GENERAL OFFICES SMALL ASSEMBLY ROOMS
		I	.20	.16	.14	.13	.11	.09	.07	.06		
		H	.23	.19	.17	.15	.12	.11	.08	.07		
		G	.27	.21	.19	.18	.15	.13	.09	.08		
		F	.29	.24	.21	.19	.16	.15	.10	.09		
		E	.33	.29	.26	.22	.19	.17	.12	.11		
		D	.36	.32	.29	.23	.21	.19	.13	.12		
		C	.38	.35	.32	.25	.22	.21	.14	.13		
		B	.42	.39	.36	.27	.25	.24	.16	.15		
		A	.44	.41	.38	.29	.27	.25	.17	.16		
	No. 1863 	J	.16	.12	.10	.10	.09	.07	.05	.05	.65 Clean .60 AV. .55 Dirty	WOMEN'S DRESS SHOPS CANDY — FOOD SHOPS PRIVATE OFFICES
		I	.20	.16	.14	.14	.11	.10	.07	.06		
		H	.23	.19	.17	.15	.13	.11	.09	.07		
		G	.26	.22	.19	.18	.15	.14	.10	.09		
		F	.29	.24	.20	.20	.17	.15	.11	.10		
		E	.33	.29	.26	.22	.19	.17	.13	.12		
		D	.36	.32	.29	.24	.21	.20	.14	.13		
		C	.38	.34	.31	.25	.23	.21	.15	.14		
		B	.42	.39	.36	.27	.26	.24	.17	.16		
		A	.44	.41	.38	.30	.27	.26	.18	.17		
	No. 1915 	J	.15	.11	.10	.10	.09	.07	.05	.04	.65 Clean .60 AV. .55 Dirty	GENERAL STORES (SMALL) GENERAL OFFICES SPECIALTY SHOPS
		I	.20	.16	.14	.14	.11	.09	.07	.06		
		H	.23	.19	.17	.15	.13	.11	.09	.07		
		G	.26	.22	.19	.18	.15	.13	.10	.09		
		F	.29	.24	.21	.20	.17	.15	.11	.10		
		E	.33	.29	.26	.22	.19	.17	.13	.12		
		D	.36	.32	.29	.24	.21	.20	.14	.13		
		C	.38	.34	.31	.25	.23	.21	.15	.14		
		B	.42	.39	.36	.28	.26	.24	.17	.16		
		A	.44	.41	.38	.30	.27	.26	.18	.17		
	No. 1758S 	J	.17	.13	.11	.12	.10	.08	.07	.06	.70 Clean .65 AV. .60 Dirty	AUTOMOBILE SHOW ROOMS CHURCHES GENERAL STORES JEWELRY STORES
		I	.22	.18	.16	.15	.13	.11	.09	.08		
		H	.25	.21	.19	.17	.15	.13	.11	.09		
		G	.28	.24	.21	.20	.17	.10	.12	.11		
		F	.31	.26	.23	.21	.18	.17	.13	.12		
		E	.35	.31	.28	.24	.21	.19	.15	.14		
		D	.38	.34	.26	.26	.23	.22	.16	.15		
		C	.42	.37	.34	.27	.25	.23	.17	.16		
		B	.44	.41	.38	.29	.28	.26	.19	.18		
		A	.46	.43	.41	.32	.29	.28	.20	.19		
	No. 1780S 	J	.12	.09	.08	.07	.06	.05	.03	.02	.65 Clean .60 AV. .55 Dirty	PRIVATE OFFICES SPECIALTY SHOPS TEA ROOMS DINING ROOMS LOUNGES
		I	.16	.13	.11	.10	.08	.07	.04	.04		
		H	.18	.15	.13	.11	.09	.08	.06	.04		
		G	.21	.18	.15	.14	.11	.10	.06	.06		
		F	.23	.20	.17	.15	.12	.11	.07	.06		
		E	.27	.23	.21	.17	.14	.13	.08	.07		
		D	.29	.26	.23	.18	.16	.15	.09	.09		
		C	.31	.28	.26	.19	.17	.16	.10	.09		
		B	.34	.32	.29	.21	.20	.18	.11	.11		
		A	.36	.34	.31	.23	.21	.20	.13	.11		
	No. 1733S 	J	.15	.11	.09	.09	.07	.06	.04	.03	.65 Clean .60 AV. .55 Dirty	SCHOOL CLASSROOMS OFFICES GENERAL — WHERE THERE IS WIDE SPACING AND LOW MOUNTING
		I	.19	.15	.13	.12	.09	.08	.05	.04		
		H	.22	.18	.16	.13	.11	.09	.06	.05		
		G	.26	.21	.18	.16	.13	.12	.07	.06		
		F	.28	.23	.20	.18	.15	.13	.08	.07		
		E	.32	.28	.25	.20	.17	.15	.09	.09		
		D	.35	.31	.28	.21	.19	.17	.13	.12		
		C	.37	.34	.31	.23	.20	.19	.14	.13		
		B	.41	.38	.35	.25	.23	.22	.15	.14		
		A	.43	.10	.37	.27	.25	.23	.17	.15		
	No. 1949 	J	.16	.12	.10	.11	.09	.07	.06	.05	.65 Clean .60 AV. .55 Dirty	GENERAL STORES (SMALL) GENERAL OFFICES SPECIALTY SHOPS
		I	.20	.16	.14	.14	.11	.10	.08	.07		
		H	.23	.19	.17	.15	.13	.12	.09	.08		
		G	.26	.22	.19	.18	.15	.14	.10	.10		
		F	.29	.24	.22	.20	.17	.15	.11	.11		
		E	.33	.29	.26	.22	.19	.18	.13	.12		
		D	.34	.32	.29	24	.22	.20	.15	.14		
		C	.38	.34	.31	.25	.23	22	.16	.14		
		B	.41	.38	35	.27	.26	.24	.17	.16		
		A	.43	.40	.38	.29	.27	.26	.19	.17		
	No. 1947 	J	.14	.11	.09	.09	.07	.06	.04	.03	.65 Clean .60 AV. .55 Dirty	SCHOOL CLASSROOMS OFFICES GENERAL—WHERE THERE IS WIDE SPACING AND LOW MOUNTING
		I	.19	.15	13	.12	.09	.08	.05	.04		
		H	.22	.18	.16	.13	.11	.09	.07	.05		
		G	.25	.20	.18	.16	.13	.12	.07	.07		
		F	.27	.23	.20	.17	.15	.13	.08	.07		
		E	.32	.27	.24	.20	.17	.15	.10	.09		
		D	.35	.30	.27	.21	.19	.17	.11	.10		
		C	.37	.33	.30	.23	.20	.19	.12	.11		
		B	.40	.37	.35	.25	.23	.22	.13	.13		
		A	.42	.40	.37	.27	.25	.23	.15	.13		

TABLE OF COEFFICENTS OF UTILIZATION (Of The Art Metal Optical System of Direct Illumination)

Art Metal Standard Listed Lighting Equipment Catalog Number	Ceiling	75%			50%			30%		Maintenance Factors
	Walls	50%	30%	10%	50%	30%	10%	30%	10%	
	Room Index	COEFFICIENTS OF UTILIZATION								
450 467 476 480 481	J	.31	.29	.28	.30	.29	.28	.30	.28	.85 Clean .75 AV.
	I	.36	.35	.34	.36	.34	.34	.34	.33	
	H	.39	.38	.38	.38	.38	.37	.38	.36	
	G	.41	.41	.40	.40	.40	.39	.40	.38	
	F	.43	.42	.40	.42	.41	.40	.41	.40	
	E	.46	.45	.45	.45	.45	.42	.43	.42	
	D	.49	.47	.46	.47	.46	.45	.45	.45	
	C	.49	.48	.47	.48	.47	.46	.46	.45	
	B	.50	.49	.48	.49	.47	.47	.47	.47	
	A	.50	.49	.49	.49	.48	.47	.47	.47	
550 567 576	J	.30	.28	.28	.30	.28	.28	.30	.27	.85 Clean .75 AV.
	I	.37	.35	.35	.35	.35	.34	.35	.34	
	H	.39	.39	.37	.39	.37	.37	.37	.37	
	G	.42	.41	.41	.41	.39	.39	.39	.39	
	F	.44	.42	.42	.42	.41	.41	.41	.41	
	E	.46	.44	.44	.44	.44	.42	.44	.42	
	D	.48	.46	.46	.46	.46	.46	.46	.44	
	C	.49	.48	.46	.48	.46	.46	.46	.46	
	B	.49	.48	.48	.48	.48	.46	.46	.46	
	A	.49	.49	.48	.49	.48	.48	.48	.46	
474 574	J	.28	.26	.25	.27	.26	.25	.27	.25	.85 Clean .75 AV.
	I	.33	.32	.31	.33	.31	.31	.31	.30	
	H	.36	.35	.35	.35	.35	.34	.35	.33	
	G	.37	.37	.36	.36	.36	.36	.36	.35	
	F	.39	.38	.37	.38	.37	.36	.37	.36	
	E	.41	.40	.40	.40	.40	.38	.39	.38	
	D	.44	.42	.41	.42	.41	.40	.40	.40	
	C	.44	.43	.42	.43	.42	.41	.41	.40	
	B	.45	.44	.43	.44	.42	.42	.42	.42	
	A	.45	.44	.44	.44	.43	.42	.42	.42	
457 478 557 578	J	.20	.19	.18	.20	.19	.18	.20	.18	.85 Clean .75 AV.
	I	.24	.23	.22	.24	.22	.22	.22	.22	
	H	.26	.25	.25	.25	.25	.24	.25	.24	
	G	.27	.27	.27	.27	.27	.26	.27	.25	
	F	.29	.28	.27	.28	.27	.27	.27	.27	
	E	.30	.29	.29	.29	.29	.28	.29	.28	
	D	.32	.31	.30	.31	.30	.29	.29	.29	
	C	.32	.32	.31	.32	.31	.30	.30	.29	
	B	.33	.32	.32	.32	.31	.31	.31	.31	
	A	.33	.32	.32	.32	.32	.31	.31	.31	

THE POINT-BY-POINT METHOD FOR DIRECT LIGHTING CALCULATIONS

The point-by-point method for direct lighting calculations is based on the "inverse square law": that is, the illumination varies as the square of the distance from the light source to the point of measurement.

In specialized equipment to produce a specific type of distribution of light, the distribution curve of the particular unit must be studied from the standpoint of efficiency and light control, and the candlepower distribution at various angles. Only from such a curve or data is it possible to compute footcandles at a given point from one or more units.

The candlepower distribution curves of all Art Metal Units are complete with candlepower values on the pages illustrating the unit. From these candlepower distribution curves of the units, the footcandles at any given point may be computed from the following formulae:

$$\text{(1) Footcandles} = \frac{CP}{D^2} \quad \frac{\text{(Candlepower)}}{\text{(Distance in feet)}}$$

(Normal to beam)

$$\text{(2) Footcandles} = \frac{CP}{D^2} \text{ Cosine of Angle A}$$

(On Horizontal plane)

Trigonometrical relationship

$$D = \frac{H}{\text{Cosine of Angle A}}$$

Substituting in (2)

$$\text{(3) Footcandles} = \frac{CP}{H^2} \text{ X Cosine}^3 \text{ A}$$

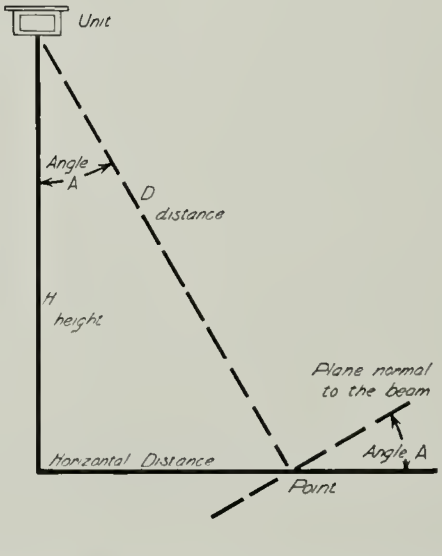


TABLE OF TRIGONOMETRIC FUNCTIONS TO BE SUBSTITUTED IN THE ABOVE FORMULAE

Angle	Cos. A	Cos.^3 A	Angle	Cos. A	Cos.^3 A	Angle	Cos. A	Cos.^3 A	Angle	Cos. A	Cos.^3 A	Angle	Cos. A	Cos.^3 A	Angle	Cos. A	Cos.^3 A
0	1.000	1.000	16	.961	.888	31	.857	.630	46	.694	.335	61	.485	.114	76	.242	.0142
1	1.000	1.000	17	.956	.874	32	.848	.610	47	.682	.317	62	.469	.103	77	.225	.0114
2	.999	.998	18	.951	.860	33	.839	.590	48	.669	.300	63	.454	.0936	78	.208	.0090
3	.999	.995	19	.946	.845	34	.829	.570	49	.656	.282	64	.438	.0842	79	.191	.0069
4	.998	.993	20	.940	.829	35	.819	.550	50	.642	.265	65	.423	.0754	80	.174	.0052
5	.996	.988	21	.934	.813	36	.809	.529	51	.629	.249	66	.407	.0671	81	.156	.0038
6	.995	.983	22	.927	.797	37	.799	.509	52	.616	.233	67	.391	.0596	82	.139	.0027
7	.993	.978	23	.920	.780	38	.788	.489	53	.602	.218	68	.375	.0526	83	.122	.0018
8	.990	.971	24	.914	.762	39	.777	.469	54	.588	.203	69	.358	.0460	84	.105	.0011
9	.980	.963	25	.906	.744	40	.766	.449	55	.574	.189	70	.342	.0400	85	.0872	.0007
10	.985	.955	26	.899	.726	41	.755	.429	56	.559	.175	71	.326	.0345	86	.0698	.0003
11	.982	.945	27	.891	.707	42	.743	.410	57	.545	.161	72	.309	.0295	87	.0523	.0001
12	.978	.935	28	.883	.688	43	.731	.391	58	.530	.149	73	.292	.0250	88	.0349	
13	.974	.925	29	.875	.668	44	.719	.372	59	.515	.137	74	.276	.0209	89	.0175	
14	.970	.913	30	.866	.649	45	.707	.353	60	.500	.125	75	.259	.0173	90	.0000	
15	.966	.901															

In the following table the footcandles on the horizontal plane have been calculated from formula 2 on the preceding page for a source of 100 candlepower for a wide range of mounting heights and distances out from the unit. Given also is the angle in degrees so that at any given height and distance out, the actual candlepower for that particular angle may be taken directly from the distribution curve of the unit. By multiplying the delivered candlepower (in hundreds or fractions of hundreds) at this angle by the footcandles produced per hundred candlepower as given in the table, the resultant horizontal footcandles at the point may be obtained.

Upper Figures—Angle Between Light Ray and Vertical
Lower Figures—Footcandles on a Horizontal Plane Produced by a Source of 100 Candlepower

HEIGHT OF LIGHT SOURCE ABOVE SURFACE TO BE LIGHTED—FEET	HORIZONTAL DISTANCE FROM UNIT—FEET																												
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	22	24	26	28	30	32	34	36
4	0° 0′ 6.250	14° 5.707	27° 4.472	37° 3.200	45° 2.210	51° 1.524	56° 1.066	60° .764	63° .559	66° .419	68° .320	70° .249	72° .198	73° .159	74° .130	75° .107	76° .090	77° .075	78° .064	78° .055	79° .047	80° .037	81° .028	81° .022	82° .018	82° .015	83° .012	83° .010	84° .008
5	0° 0′ 4.000	11° 3.771	22° 3.202	31° 2.522	39° 1.904	45° 1.414	50° 1.050	54° .785	58° .595	61° .458	63° .358	66° .283	67° .228	69° .185	70° .152	72° .126	73° .106	74° .090	74° .077	75° .066	76° .057	77° .044	78° .034	79° .027	80° .022	81° .017	81° .015	82° .012	82° .010
6	0° 0′ 2.778	9° 2.673	18° 2.372	27° 1.987	34° 1.600	40° 1.260	45° .982	49° .766	53° .600	56° .474	59° .378	61° .305	63° .249	66° .205	67° .170	68° .142	69° .120	71° .102	71° .088	72° .076	73° .066	75° .051	76° .040	77° .032	78° .026	79° .021	79° .017	80° .015	80° .012
7	0° 0′ 2.041	8° 1.980	16° 1.814	23° 1.585	30° 1.336	36° 1.100	41° .893	45° .722	49° .583	52° .473	55° .385	58° .316	60° .261	62° .218	63° .183	65° .154	66° .131	68° .113	69° .097	70° .084	71° .074	72° .057	74° .045	75° .036	76° .029	77° .024	78° .020	78° .017	79° .014
8	0° 0′ 1.563	7° 1.527	14° 1.427	21° 1.283	27° 1.118	32° .953	37° .800	41° .640	45° .552	48° .458	51° .381	54° .318	56° .267	58° .225	60° .191	62° .163	63° .140	65° .121	66° .105	67° .091	68° .080	70° .063	72° .050	73° .040	74° .032	75° .026	76° .022	77° .019	77° .016
9	0° 0′ 1.235	6° 1.212	13° 1.148	18° 1.054	24° .943	29° .825	34° .711	38° .607	42° .515	48° .437	58° .370	51° .314	53° .267	55° .228	57° .196	59° .168	61° .146	62° .126	63° .110	65° .097	66° .085	68° .067	69° .053	71° .043	72° .035	73° .029	74° .025	75° .021	76° .018
10	0° 0′ 1.000	5° 43′ .985	11° .943	17° .879	22° .801	27° .716	31° .631	35° .550	39° .476	42° .411	45° .354	48° .305	50° .263	52° .227	54° .196	56° .171	58° .149	60° .130	61° .115	62° .101	63° .089	66° .071	67° .057	69° .046	70° .038	72° .032	73° .027	74° .022	74° .019
11	0° 0′ .826	5° 12′ .816	10° .787	15° .742	20° .686	24° .623	29° .559	32° .496	36° .437	39° .383	42° .335	45° .292	48° .255	50° .223	52° .195	54° .171	56° .150	57° .132	59° .117	60° .104	61° .092	63° .074	65° .060	67° .049	69° .040	70° .034	71° .028	72° .024	73° .021
12	0° 0′ .694	4° 46′ .687	9° .668	14° .634	18° .593	23° .546	27° .497	30° .448	34° .400	37° .356	40° .315	43° .278	45° .246	47° .217	49° .191	51° .169	53° .150	55° .133	56° .119	58° .106	59° .094	61° .076	63° .062	65° .051	67° .043	68° .036	69° .030	71° .026	72° .022
13	0° 0′ .592	4° 24′ .587	9° .571	13° .547	17° .517	21° .481	25° .447	28° .404	32° .366	35° .329	38° .295	40° .263	43° .235	45° .200	47° .187	49° .166	51° .148	53° .133	54° .119	56° .106	57° .096	59° .078	62° .064	63° .053	65° .044	67° .037	68° .032	69° .027	70° .023
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15	0° 0′ .444	3° 49′ .442	8° .433	11° .419	15° .401	18° .380	22° .356	25° .331	28° .305	31° .280	34° .256	36° .233	39° .212	41° .192	43° .174	45° .157	47° .142	49° .129	50° .117	52° .106	53° .096	56° .079	58° .066	60° .055	62° .047	63° .040	65° .034	66° .029	67° .025
16	0° 0′ .391	3° 35′ .388	7° .382	11° .371	14° .357	17° .339	21° .321	24° .300	27° .280	29° .259	32° .238	35° .219	37° .200	39° .183	41° .167	43° .152	45° .138	47° .126	48° .115	50° .105	51° .095	54° .080	56° .067	58° .056	60° .048	62° .041	63° .035	65° .030	66° .026
17	0° 0′ .346	3° 22′ .344	7° .339	10° .331	13° .319	16° .306	19° .290	22° .274	25° .256	28° .239	30° .222	33° .205	35° .189	37° .174	39° .159	41° .146	43° .134	45° .122	47° .112	48° .103	50° .094	52° .079	55° .069	57° .057	59° .048	60° .042	62° .036	63° .031	65° .027
18	0° 0′ .309	3° 11′ .307	6° .303	9° .297	13° .287	16° .276	18° .264	21° .250	24° .236	27° .221	29° .206	31° .192	34° .178	36° .165	38° .152	40° .140	42° .129	43° .119	45° .109	47° .100	48° .092	51° .079	53° .067	55° .057	57° .049	59° .042	61° .036	62° .032	63° .028
19	0° 0′ .277	3° 1′ .276	6° .273	9° .267	12° .260	15° .251	18° .240	20° .229	23° .217	25° .205	28° .192	30° .180	32° .167	34° .156	36° .145	38° .134	40° .124	42° .115	43° .106	45° .098	46° .090	49° .077	52° .066	54° .057	56° .049	58° .042	59° .037	61° .032	62° .028
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22	0° 0′ .207	2° 36′ .206	5° 10′ .205	8° .201	10° .196	13° .192	15° .185	18° .179	20° .171	22° .164	25° .155	27° .148	29° .140	31° .132	33° .124	34° .114	36° .109	38° .102	39° .096	41° .091	42° .084	45° .073	47° .064	50° .056	52° .049	54° .043	55° .038	57° .033	59° .029
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27	0° 0′ .137	2° 7′ .137	4° 14′ .136	6° .135	8° .133	10° .130	12° .128	15° .124	17° .121	18° .117	20° .113	22° .109	24° .105	26° .100	27° .096	29° .092	31° .087	32° .083	34° .079	35° .075	37° .071	39° .064	42° .057	44° .051	46° .046	48° .041	50° .037	52° .033	53° .030
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33	0° 0′ .092	1° 44′ .092	3° 28′ .091	5° 12′ .091	7° .090	9° .089	10° .087	12° .086	14° .084	15° .082	17° .080	18° .078	20° .076	22° .074	23° .072	24° .069	26° .067	27° .065	29° .062	30° .060	31° .058	34° .053	36° .049	38° .045	40° .041	42° .037	44° .034	46° .031	47° .028
36	0° 0′ .077	1° 36′ .077	3° 11′ .077	4° 46′ .076	6° .076	8° .075	9° .074	11° .073	13° .072	14° .070	16° .069	17° .067	18° .066	20° .064	21° .062	23° .061	24° .059	25° .057	27° .055	28° .053	29° .052	31° .048	34° .044	36° .041	38° .038	40° .035	42° .032	43° .030	45° .027
40	0° 0′ .063	1° 26′ .062	2° 52′ .062	4° 17′ .062	5° 43′ .062	7° .061	9° .060	10° .060	11° .059	13° .058	14° .057	15° .056	17° .055	18° .054	19° .053	21° .051	22° .050	23° .049	24° .047	25° .046	27° .045	29° .042	31° .039	33° .037	35° .034	37° .032	39° .030	40° .028	42° .026
45	0° 0′ .049	1° 16′ .049	2° 33′ .049	3° 49′ .049	5° 5′ .049	6° .049	8° .048	9° .048	10° .047	11° .047	13° .046	14° .045	15° .045	16° .044	17° .043	18° .042	20° .041	21° .040	22° .040	23° .039	29° .038	26° .036	28° .034	30° .032	32° .030	34° .028	35° .027	37° .025	39° .024
50	0° 0′ .040	1° 9′ .040	2° 17′ .040	3° 26′ .040	4° 34′ .040	5° 43′ .039	7° .039	8° .039	9° .039	10° .038	11° .038	12° .037	14° .037	15° .036	16° .036	16° .035	18° .035	19° .034	20° .033	21° .033	22° .032	24° .031	26° .029	27° .028	29° .027	31° .025	33° .024	34° .023	36° .021

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